September 1956

Agricultural Marketing Research

ITS USE, APPRAISAL, AND PROSPECT

A Report of the
National Workshop on
Agricultural Marketing
July 13-20, 1956
Iowa State College

UNITED STATES DEPARTMENT OF AGRICULTURE

Agricultural Marketing Service
cooperating with Land-Grant Colleges
and State Departments of Agriculture

AMS-60 (1956)

Washington, D. C.

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INTRODUCTION

The National Workshop in Agricultural Marketing held at Iowa State College July 13-20, 1956 was the eighth in a series, sponsored by the Land-Grant Colleges and the U. S. Department of Agriculture. These workshops have had the general purpose of improving the professional competence of workers in agricultural marketing and of facilitating coordination of their efforts through opportunity for exchanging views on objectives, methods, and programs. In both these ways they have contributed to carrying out more effectively the objectives of the Agricultural Marketing Act of 1946.

The 1956 Workshop had as its topic the review and appraisal of research relating to agricultural marketing and the application of that research, and consideration of research needs in the years ahead. Nearly 200 research, service and extension workers participated in the undertaking, in general sessions, and in seven appraisal groups that concentrated upon the several facets of the subject. In addition, four series of seminars provided specific training in advanced research techniques, and one was devoted to ways of improving the administration of research.

The eighth Workshop differed from those preceding: (1) in that its subject embraced all agricultural marketing research - the six preceding were each devoted to a particular segment of marketing work; (2) in that it focused specifically upon research - the three preceding also reviewed service and extension activities within the segment of marketing work under study; (3) in the addition of training seminars to the program - a wholly new departure. Organization of this Workshop also differed in that extension and service workers not wishing to participate full time were permitted to come for the last three days only.

This report of the Workshop has been compiled: (1) for use by those who attended, as a record of the meeting; and (2) for the information of others concerned with agricultural marketing, as a summary of ideas that emerged from the discussions. The report includes the addresses presented in general sessions and the reports submitted by the secretaries of the several appraisal groups. In addition, it gives outlines of the subjects dealt with in the seminars. It also includes the roster of participants and other information regarding the conduct of the Workshop.

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PROGRAM

PERIOD I

Fri., July 13

8:00-9:00 a.m. General Session.....Great Hall, Memorial Union

Chairman - Karl A. Fox
Head, Department of Economics and Sociology
Iowa State College

Purpose and Plan of the Workshop -
Harry C. Trelogan
Director, Marketing Research Division
Agricultural Marketing Service

9:15-9:30 a.m. General Session.....Great Hall, Memorial Union

Chairman - Barnard Joy
Assistant to the Administrator
Agricultural Research Service

Presentation of Local Workshop Plans and Arrangements -
Geoffrey S. Shepherd
Department of Economics and Sociology
Iowa State College

9:30-11:45 a.m. Seminars and Appraisal Group Staff Committees

1:00-3:00 p.m. Appraisal Group Meetings

4:45-5:45 p.m. Tour of Iowa State College TV Station*

6:00-9:00 p.m. Dinner.....South Ballroom, Memorial Union

Chairman - G. W. Browning
Associate Director, Iowa Agricultural Experiment Station

Welcome - James H. Hilton
President, Iowa State College

Framework for Appraising Marketing Research -
Karl A. Fox
Iowa State College

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* Tours assemble on West Terrace of Union Building.

Sat., July 14

8:00-8:45 a.m. General Session.....South Ballroom, Memorial Union

Chairman - R. M. Alexander
Assistant Director, Oregon Agricultural Experiment Station

Marketing Research Appraisal from the Farmer's View Point -
Robert B. Taylor
Administrator, Oregon Wheat Commission
Pendleton, Oregon

9:00-11:45 a.m. Appraisal Group Meetings

1:00-3:00 p.m. Seminars and Staff Committees

3:00-6:00 p.m. Group Recreation and Picnic - Ledges State Park*

Sun., July 15

3:00-6:00 p.m. Tour of an Iowa Farm*

Mon., July 16

8:00-8:45 a.m. General Session.....South Ballroom, Memorial Union

Chairman - Alex Black
Assistant Director, Penna. Agricultural Experiment Station

Marketing Research Appraisal from the Point of View of
A Food Trade Representative -
C. W. Sadd
General Manager, Cooperative P & C Family Foods, Inc.
Syracuse, New York

9:00-11:45 a.m. Appraisal Group Meetings

1:00-3:30 p.m. Seminars and Staff Committees

3:45-4:45 p.m. Tour of Institute for Atomic Research
(Advance registration required)

4:45-5:45 p.m. Tour of Iowa State College TV Station*

No formal dinners scheduled for tonight

* Tours assemble on West Terrace of Union Building.

Tues., July 17

8:00-8:45 a.m. General Session.....Great Hall, Memorial Union

Chairman - Dorothy Dickins
Director of Home Economics
Mississippi State College

Marketing Research Appraisal from the Consumer's Point of View -
Mrs. Katharine Alderman (Home Maker)
St. Paul, Minnesota

9:00-11:45 a.m. Appraisal Group Meetings

1:00-3:30 p.m. Seminars and Staff Committees

4:45-5:45 p.m. Tour of Iowa State College TV Station*

PERIOD II

6:00-9:00 p.m. Dinner.....New Dining Room, Friley-Hughes Hall

Chairman - Floyd Andre
Dean of Agriculture
Iowa State College

Ten Years of Stepped Up Marketing Research -
Earl L. Butz
Assistant Secretary, U. S. Department of Agriculture

Wed., July 18

8:00-11:30 a.m. General Session.....Gallery Room, Memorial Union

Chairman - Gwynn Garnett
Administrator, Foreign Agricultural Service

Presentations of Appraisals of Progress in Marketing Research by Consultants to Appraisal Groups I, II, and III

12:45-3:00 p.m. General Session.....Gallery Room, Memorial Union

Chairman - Roy E. Huffman
Head, Department of Economics and Sociology
Montana State College

Presentations of Appraisals of Progress in Marketing Research by Consultants to Appraisal Groups IV and V

3:30-4:30 p.m. Tour of Iowa State College Boar Testing Station

* Tours assemble on West Terrace of Union Building.

Thurs:, July 19

8:00-10:15 a.m. General Session.....South Ballroom, Memorial Union

Chairman - Niels Rorholm
Head, Department of Economics
University of Rhode Island

Presentation of Appraisals of Progress in Marketing Research by Consultants to Appraisal Groups VI and VII

10:30-11:45 a.m. Meeting of Extension Workers.....South Ballroom
Meeting of State Department of Agriculture Workers.....Room 201
Appraisal Group Meetings

1:00-3:30 p.m. Appraisal Group Meetings
(Extension and Service workers meet jointly with Research workers)

3:45-4:45 p.m. Tour of Institute for Atomic Research
(Advance registration required)

4:45-5:45 p.m. Tour of Iowa State College TV Station*

6:00-9:00 p.m. Dinner.....Great Hall, Memorial Union

Chairman - M. A. Anderson
Associate Director, Iowa Agricultural Extension Service

How Farm People Accept New Ideas -
J. M. Bohlen and G. M. Beal
Department of Economics and Sociology
Iowa State College

Fri., July 20

8:00-9:15 a.m. Appraisal Group Meetings
(Research, Extension and Service jointly)

9:30-11:00 a.m. General Session.....South Ballroom, Memorial Union

Chairman - Omer W. Herrmann
Deputy Administrator, Agricultural Marketing Service

Summary of Workshop Contributions to Marketing Research -
Herman M. Southworth
Asst. to Deputy Adm., Agricultural Marketing Service

Review of Workshop Contributions to Improved Marketing Service Programs -
George H. Chick
Chief, Division of Markets
Maine State Department of Agriculture

* Tours assemble on West Terrace of Union Building.

Fri., July 20 (continued)

Review of Workshop Contributions to Improved Marketing Extension Programs -
Maurice C. Bond
Director of Extension, Cornell University

Ad Hoc Sessions

Mon., July 16

		Memorial Union
4:45 p.m.	Teaching Agricultural Marketing ..... Leader - A. L. Larson, Oklahoma A & M College	Pine Room
3:45 p.m.	Dairy Marketing Research ..... Leader - Hugh L. Cook, University of Wisconsin	Room 64
3:45 p.m.	Developing New Market Facilities ..... Leader - R. D. Donaldson, Penna. State University	Cyclone Cellar
6:00 p.m.	Motivation Research; Why Does A Consumer Purchase What She Does?..... Leader - J. D. Shaffer, Michigan State University	Pine Room

Tues., July 17

3:45 p.m.	Fruit and Vegetable Marketing Research ..... Leader - A. H. Harrington, State College of Washington	Pine Room
3:45 p.m.	Livestock Marketing Research ..... Leader - Jack D. Johnson, Virginia Polytechnic Institute	Room 59
3:45 p.m.	Poultry and Egg Marketing Research ..... Leader - A. L. Owens, University of Rhode Island	Cyclone Cellar

Wed., July 18

3:15 p.m.	What Private Research Agencies are Doing and How They Can Help Us ..... Leader - Phillip B. Dwoskin, Marketing Research Division, Agricultural Marketing Service	Pine Room

Ad Hoc Sessions (continued)

Wed., July 18

5:30 p.m. Films and Graphic Materials for Presentation of Results of Marketing Research .....Pine Room
Leader - Rosalind Lifquist
Marketing Research Division
Agricultural Marketing Service
Featuring - Captain R. C. Bentley
Iowa State College

Thurs., July 19

3:45 p.m. Problem Surveys - Would Extension-Research Cooperation Fill a Gap?..... Pine Room
Leader - W. H. Dankers
University of Minnesota

Appraisal Groups

Appraisal Group I ..... Gallery Room

Consultant - F. A. Kutish, Professor of Agricultural Economics
Iowa State College

Chairman - Samuel J. Gilbert, Federal-State Agricultural Statistician
Des Moines, Iowa

Secretary - John O. Gerald, Market Organization and Costs Branch
Marketing Research Division, Agricultural Marketing Service

Marketing information and statistics and outlook analysis. - Research relating to needs for marketing information by farmers, marketing firms and consumers; to uses made of it; to methods of obtaining, compiling, analyzing, summarizing, and disseminating marketing information and developing outlook forecasts; to the accuracy of information and forecasts supplied.

Appraisal Group II..... Council Chamber

Consultant - D. Barton DeLoach, Chief, Market Organization and Costs Branch, Marketing Research Division, Agricultural Marketing Service

Chairman - Martin D. Woodin, Professor of Agricultural Economics
Louisiana State University

Secretary - N. T. Pritchard, Market Organization and Costs Branch
Marketing Research Division, Agricultural Marketing Service

Appraisal Groups (continued)

Pricing and the organization of markets. - Research relating to margins and their composition; marketing channels; buying and selling practices and the organization of exchange; the competitive structure of markets; inter-regional competition; institutional arrangements affecting marketing.

Appraisal Group III.....Cyclone Cellar

Consultant - Eric Thor, Associate Professor of Agricultural Economics
University of Florida

Chairman - John G. McNeely, Professor of Agricultural Economics
Texas A & M College

Secretary - Robert K. Bogardus, Transportation and Facilities Branch
Marketing Research Division, Agricultural Marketing Service

Efficiency of marketing operations.- Research relating to the design and operation of facilities and equipment, work methods and organization, management of operations in the firm, operating costs and returns and their measurement, economies of scale.

Appraisal Group IV.....Room 59

Consultant - E. R. Keihl, Professor of Agricultural Economics
University of Missouri

Chairman - Starley M. Hunter, Federal Extension Service

Secretary - Harold T. Cook, Biological Sciences Branch, Marketing
Research Division, Agricultural Marketing Service

Product quality: Its measurement, and the maintenance and improvement of quality in marketing channels. - Research relating to the identification and measurement of quality; consumer interest in quality; the formulation of grade standards and development of testing procedures; the extent and causes of losses through deterioration, contamination, and spoilage and ways of preventing and controlling such losses; and to the economic aspects of quality identification and grading and quality improvement programs.

Appraisal Group V..... Room 64

Consultant - Shelby A. Robert, American Dairy Association, Chicago, Illinois

Chairman - R. E. Seltzer, Professor of Agricultural Economics
University of Arizona

Appraisal Groups (continued)

Secretary - Robert M. Walsh, Chief, Market Development Branch
Marketing Research Division, Agricultural Marketing Service

Market development. - Research relating to the expansion of demand through promotion and merchandising, potential demand for new or improved products or services, product development and market testing, consumer preferences and buying behavior and the motivations underlying it. Domestic and foreign market outlets will be considered.

Appraisal Group VI.....Room 244

Consultant - G. E. Brandow, Professor of Agricultural Economics
Pennsylvania State University

Chairman - Walter J. Wills, Professor of Agricultural Marketing
Southern Illinois University

Secretary - Herbert C. Kriesel, Statistical and Historical Research Branch
Agricultural Economics Division, Agricultural Marketing Service

Public policies and programs affecting market prices and distribution.- Research relating to the extent of, need for, and effects of public regulation of markets and marketing agencies, organizations, and institutions; to the public provision of marketing services and provision and operation of markets and market facilities; to the appraisal of existing or proposed price support, surplus removal, distribution, subsidy, diversion, sales promotion, marketing agreement, and similar programs.

Appraisal Group VII.....Pine Room

Consultant - Raymond G. Bressler, Jr., Director, Giannini Foundation
of Agricultural Economics, University of California

Chairman - L. W. Schruben, Professor of Agricultural Economics
Kansas State College

Secretary - Winn F. Finner, Asst. Chief, Market Organization & Costs Branch
Marketing Research Division, Agricultural Marketing Service

General objectives and balance in marketing research. - Over-all appraisal in terms of objectiveness, comprehensiveness and balance in coverage of the field, efficiency with which the work is organized and conducted, cumulative accomplishment, effectiveness of results in application.

Seminars

Seminar I.....Room 64

Leader - Charles E. French, Associate Professor of Agricultural Economics
Purdue University

Statistical and mathematical techniques for input-output analysis. - Linear programming; the Cobb-Douglas and alternative functional representations; analysis of operation involving discrete rather than continuously variable inputs.

Seminar II..... Council Chamber

Leader - Richard H. Foote, Statistical and Historical Research Branch
Agricultural Economics Division, Agricultural Marketing Service

Statistical analysis of economic relationships. - Single-equation and multi-equation analysis of time-series data; the development and testing of structural models; dealing with nonlinear relationships.

Seminar III..... Gallery Room

Leader - Earl E. Houseman, Chief Statistical Officer, Statistical Clearance and Standards, Agricultural Marketing Service

Use of survey and experimental techniques in marketing research. - Consumer and trade surveys, continuing panels, and controlled experiments as methods of measuring consumer preference and acceptance, studying consumption patterns, and testing the effectiveness of promotional and merchandising efforts; sampling, design and interpretation, problems associated with experimental and survey approaches, potentialities for motivation research.

Seminar IV..... Room 59

Leader - Max E. Brunk, Professor of Marketing, Department of Economics
Cornell University

Methods of research on operational problems of firms. - Methods Engineering, cost accounting, development of synthetic models, analysis of economies of scale, estimation and comparison of costs and returns.

Seminar V..... Pine Room

Leaders - George F. Dow, Associate Director
Maine Agricultural Experiment Station

Seminars (continued)

- Harry C. Trelogan, Director, Marketing Research Division
Agricultural Marketing Service

Administrative methods and techniques in the development and operation of marketing research programs. - Determination of program objectives, selection of problems, consultation with industry, use of advisory committees, staff participation in program development, appraisal of proposed projects, adequacy of information on going research, encouragement of creative approach among research personnel, integrating basic and applied research, preparation and presentation of budgets, organization of staff, recruitment, training, and supervision, supervision of contract research, organizing cooperation among disciplines, organizing interagency and interinstitutional cooperation, maintaining industry cooperation, delineation of work between agencies and organizational units, adequacy and expense of communications between researchers, regional research, reporting results of research, operating fiscal controls.

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The following committee was responsible for planning and conduct of the Workshop:

Geoffrey S. Shepherd, Professor of Agricultural Economics
Iowa State College, Ames, Iowa

Maurice C. Bond, Director of Extension, Cornell University
Ithaca, New York

Aubrey J. Brown, Head, Department of Agricultural Economics
University of Kentucky, Lexington, Kentucky

George H. Chick, Chief, Division of Markets, Maine Department
of Agriculture, Augusta, Maine

William C. Crow, Liaison, Commissioners of Agriculture
Agricultural Marketing Service, U. S. Department of Agriculture
Washington 25, D. C.

D. Barton DeLoach, Chief, Market Organization and Costs Branch
Marketing Research Division, Agricultural Marketing Service
U. S. Department of Agriculture, Washington 25, D. C.

Raymond C. Scott, Assistant Director, Division of Agricultural
Economics Programs, Federal Extension Service
U. S. Department of Agriculture
Washington 25, D. C.

The Committee was assisted by:

Barnard Joy, Assistant to the Administrator for Research Advisory Committees, Agricultural Research Service, U. S. Department of Agriculture, Washington 25, D. C. - Consultant

Rosalind Lifquist, Market Organization and Costs Branch, Marketing Research Division, Agricultural Marketing Service, U. S. Department of Agriculture, Washington 25, D. C. - Consultant

Herman M. Southworth, Assistant to the Deputy Administrator, Marketing Research and Statistics, Agricultural Marketing Service, U. S. Department of Agriculture, Washington 25, D. C. - Consultant

Harry C. Trelogan, Director, Marketing Research Division
Agricultural Marketing Service, U. S. Department of Agriculture
Washington 25, D. C. - Consultant

Arthur W. True, Assistant to the Director, Marketing Research Division
Agricultural Marketing Service, U. S. Department of Agriculture
Washington 25, D. C. - Executive Secretary of Planning Committee
- Executive Secretary of the Workshop

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WORKSHOP PURPOSE AND PLAN

Harry C. Trelogan
Director, Marketing Research Division
Agricultural Marketing Service

The 8th National Agricultural Marketing Workshop comes at a juncture in the development of our work that seems propitious for reflection and evaluation. The Agricultural Marketing Act of 1946, enacted as Title II of the Research and Marketing Act, had among its stated objectives to bring to marketing a scientific approach by providing for: (1) "continuous research to improve the marketing, handling, storage, processing, transportation, and distribution of agricultural products; and (2) cooperation among Federal and State agencies, producers, industry organizations, and others in the development and effectuation of research and marketing programs to improve the distribution processes." Now that 10 years have elapsed since the legislation was passed, the time is appropriate to stop, look, and listen as we go forward with the work. This is the reasoning behind the theme adopted for this Workshop, namely, "Agricultural Marketing Research and Its Use--Appraisal and Prospect."

In terms of the workshops themselves, this occasion represents a point of departure that involves a considerable change in tact from those that have preceded it. Our first workshop, held at the University of Minnesota in 1949, had as its purpose "to improve the quality and effectiveness of agricultural marketing research by providing for persons who are planning, supervising, and conducting such research the opportunity to clarify the objectives, improve the methodology and increase the usefulness of such research through group thinking and an exchange of ideas and experiences." The subject matter was a generalized review of agricultural marketing research with six work groups discussing broad areas of the field. A sizable portion of those attending were leaders responsible for this expanding marketing research activity. Deans, directors, administrators, and heads of departments were prominent among the group. Accordingly, they looked at the problems as supervisors would with broad purposes and objectives in mind. Methods and techniques of research were discussed but hardly in satisfactory detail.

The 83 participants were enthusiastic about the potentialities of the workshop approach for helping those engaged in the work to improve the general level of performance through exchange of views and ideas. They proposed that three subsequent workshops be planned to permit greater scrutiny of particular segments of marketing research with greater emphasis upon methods and techniques for conducting research. They recommended that the general pattern of roughly half the time spent in general sessions and half in work group discussions be continued but that some representation from

Extension and Service workers be included to obtain the points of view of those using or disseminating the results of marketing research.

The next three workshops responded to these proposals. Attendance was made up primarily of those who actually did the research. The subject matter and work groups were designed to bring together scientists from a wide array of disciplines. While agricultural economists tended to be most numerous, a liberal intermixture of home economists, technologists, biologists, engineers, marketing specialists and statisticians was included. Exchange of ideas among these researchers led to better understanding of terminology and different types of research methods, of areas of mutual interest, and of opportunities for joint research. Each succeeding workshop turned out to be larger than the preceding one and included more Extension and Service workers as well as people engaged in marketing research.

At the end of this series, a new series of workshops was recommended with the proposal that Extension and Service subjects and personnel be included on a more equal basis. This was believed desirable as these activities were being segregated to a greater degree in the administration of the legislation and the workshop offered an excellent forum for the workers to keep in closer touch with the activities of their counterparts in the respective groups. It was also proposed that the workshops be held in different regions to give workers in all parts of the country a better opportunity to attend. Except for the workshop held in the Far West, attendance has continued to grow, evidently reflecting a greater appreciation on the part of those engaged in the marketing work of the opportunities afforded for advancing professional knowledge.

The Plan

While the basic pattern for the workshops has been maintained throughout, each one has been a new experience in terms of both subject matter and arrangement. Each one has also brought forth criticisms and suggestions for alternate ways of achieving the objectives. This year the pattern has been altered to a greater degree than heretofore in the effort to respond to some of the more persistent suggestions. The changes reflect an endeavor to devote more time to research methodology and group discussions and to permit a greater number, especially of Extension and Service people, to attend for a shorter length of time.

To achieve these ends, this workshop will: (1) Have less time allotted to formal lectures or presentations that have been used in the past to open each day's discussions; (2) include for the first time seminars dealing with advanced methods and techniques of research; and (3) in view of the subject matter of the workshop in which the points of view of administrative leaders of research are particularly important, provide seminars treating topics of interest to research administrators.

The workshop will be divided into two fairly distinct periods. The first will include the seminars and the appraisal discussions. The second will be devoted primarily to reporting the results of the appraisal group discussions and to consideration of the dissemination of research results. This is designed to let Extension and Service workers get the essence of the previous discussions and to contribute to the phases of appraisal in which they are most interested without staying throughout the whole workshop.

The seminars on methodology are not intended to teach the methods scheduled for review. Rather, they anticipate that those attending each seminar are already familiar with the method so that time can be devoted primarily to an examination of the application of the method to different types of problems and to recent advances or refinements that have been made in it. The seminars are under the leadership of men who are acknowledged leaders of the types of work involved. These leaders, together with selected associates, have planned in advance for the systematic presentation and discussion of the subject matter.

The seminars on administration are likely to assume the characteristics of group discussions devoted to a series of selected topics that have been divided between them. Most of you will have the opportunity to select both a seminar and an appraisal group of your choice. Those who have accepted leadership of the appraisal groups, however, will not have the opportunity to attend seminars.

For each appraisal group a staff committee, made up of the chairman, secretary, and consultant, plus one or two others, has been asked to devote its time to guiding and directing the discussions in more orderly and systematic fashion than might otherwise occur. The appraisal group staff committees will meet each day simultaneously with the seminars. This arrangement is intended to conserve time in appraisal groups and thereby afford time for most of those participating in each appraisal group to attend seminars.

At the start of Period II the consultant for each appraisal group has been asked to present a talk on the subject considered by his appraisal group. The consultant is given wide latitude to express his own views and his talk will be part of the workshop report. Although it is expected that his talk will draw heavily upon views that have been expressed within the group he represents, he is not required to express the consensus of the group. The written report of the group for inclusion in the published workshop report will be prepared independently, under the general direction of the chairman, with the secretary taking major responsibility for the actual writing. You will note that opportunity is provided in Period II for review and revision of the written report of each appraisal group after the consultant has presented his talk and the general session has reacted to it.

As in the past, provision has been made for dinners that will provide some diversion from the immediate discussions of the appraisal groups and seminars and for a number of ad hoc activities. The ad hoc activities

include opportunities to become familiar with the host institution, including its facilities, personnel, and hospitality. Time has also been set aside for ad hoc groups to meet to discuss topics not formally scheduled that are of interest to sufficient numbers to warrant getting together for a mutually beneficial session. As soon as your desires for ad hoc meetings on particular subjects are made known, the arrangements for these meetings will be announced.

The Purpose

The general theme or topic of this workshop is "Agricultural Marketing Research and Its Use--Appraisal and Prospect." In a sense, this represents a reversion back to the subject matter of the original workshop. It reflects the thought that the time is appropriate to assess what has been done since the Research and Marketing Act was passed 10 years ago and what needs to be done to adequately carry out the responsibilities that have been entrusted to us. For this purpose we are pleased to have with us a number of administrative leaders of our research joining with those who are actually conducting the work.

In approaching this theme, I anticipate that each appraisal group will exercise considerable independence with respect to the arrangement of discussions, the methods of assessment, and the ingenuity employed to make best use of the limited time available. The different types of subject matter assigned to each appraisal group will necessarily require variations in method of assessment. Moreover, nothing could be more deadening than to have a series of reports that followed a uniform or routinized pattern.

Whatever the approach adopted, each appraisal group needs to bear in mind that the basic objective of research under the Agricultural Marketing Act is to seek solutions to problems encountered in marketing farm products. In order to do this, we must have available to us adequate research tools and the know-how to use them properly. The purpose of this workshop is to appraise the research itself and not the marketing functions or services to which research is applied. In other words, we need to answer the questions that may be raised about the adequacy and performance of the researchers in the markets.

I anticipate that there may be some disagreement about the definitions of marketing and about the objectives of marketing research. It behooves us, however, to try to visualize what was intended in the legislation under which most of our work is done and to appraise our work in the light of the objectives, directives, and problems cited in that legislation. Among the types of questions that will probably merit consideration in the appraisal are the following:

(1) What do we know now that we didn't know 10 years ago? Has this knowledge been compiled in ways to make it most useful?

(2) To what degree has research in the area under discussion provided ideas, information, or statistical data that can be used intelligently in a private enterprise system of marketing?

(3) How much is the research actually being used by private firms, regulatory or service agencies, or others associated with our marketing system?

(4) What may be regarded as the outstanding successes and the most notable failures in the research that has been undertaken and what guidance can be obtained from these observations?

(5) Do the designs of experiment and the results of research bear upon the stated objectives of the projects? (Or do we need another Leonard Salter to come along and point out the inconsistency between (a) objectives, (b) research results, and (c) conclusions or recommendations in research publications?)

(6) What advances have been made in the methods and techniques of research, particularly from the standpoint of improving its scope and validity as well as its potential usefulness for the clientele it is intended to serve? What further advances are needed?

(7) Does the research in the area under discussion treat one or more of the objectives listed for attention in Section 203 of the Agricultural Marketing Act of 1946? (Or has the research departed from the basic assignment in the legislation?) Is our legislative authorization adequate to provide for work that will make the greatest contribution?

(8) Are there gaps in the research that are not adequately treated and therefore should receive more attention in the future?

(9) Is the research forward looking? Are we solving yesterday's problems or are we anticipating the problems that will need solution tomorrow? Is the research as dynamic as the market? Is the research that was needed yesterday still needed?

(10) What constitutes basic research in this area? Are we doing any of it? Should we do more?

(11) Is some of our research done only in the spirit of art for art's sake? Or should we be reminded of John Ruskin's observation, "Remember the most beautiful things in the world are the most useless--peacocks and lilies for instance."

(12) Is research being adequately reported? Could we be accused of conducting a mutual admiration society writing reports designed to appeal to our learned colleagues, rather than to practical farmers and market operators? Let us be mindful of Viscount Morley's observation, "Success depends on three things--who says it, what he says, how he says it; and of these three, what he says is the least important."

With respect to procedures, I have no set alignment to suggest to the appraisal group staff committees. Some ideas have already been presented and some advance work has already been done, particularly by way of preparing bibliographies and current lists of projects of research relevant to the subject matter of each appraisal group. Some thoughts have been expressed with respect to parceling out review responsibilities among the appraisal group participants. These need not be followed assiduously. They may serve as points of departure but the fact remains that any appraisal group should at least take cognizance of the publications that have appeared in the field being covered in the discussion. This does not necessarily require a systematic review of each publication. Rather it offers the opportunity for judicious selection of items to be scrutinized in greater detail as examples of successes or failures, or of particularly useful or useless activities, or of leads for paths that merit further exploration.

The very thought of appraisal incorporated in the theme of this workshop suggests that we aren't entirely satisfied or complacent. It suggests that we need to examine our work to find the inherent weaknesses, as well as to recognize the strengths that can be detected. It implies that we need to check our compasses and be conscious of the direction in which we are going. For this purpose we need to examine the horizon and ascertain whether a change of course is in order.

To do this job effectively, I suggest that all of us may have occasion to reckon with our own biases, prejudices and habits of thought. We may need to adjust our perspectives. We may do well to listen attentively to the points of view expressed by others coming from a little different habitat than our own or enjoying a different vantage point for reviewing the scene. To underscore this point will you bear with me while we show a film that has been drawn from pure research in psychology which is not intended to reflect on anything in particular but which might inspire some thoughts or provoke some discussion.

In closing this phase of the discussion, let me express the hope that 10 years of marketing research has not led us to the point where the following quotation applies:

> Give me the old enthusiasms back,
> Give me the ardent longings that I lack,--
> The glorious dreams that fooled me in my youth,
> The sweet mirage that lured me on its track,--
> And take away the bitter, barren truth.
> Ah, yes, success, I fear, has come too late!

FRAMEWORKS FOR APPRAISING MARKETING RESEARCH

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Ten years ago lacking a month the Agricultural Marketing Act of 1946 was approved. Our reverence for terminal zeros being what it is, it is fitting and proper that we should conduct a decennial review of our activities under this charter and appraise the extent to which the objectives of the founding fathers have been achieved. It is even more fitting that we appraise the extent to which marketing research meets our own criteria of relevance and success.

I. Objectives of Marketing Research

As with other historical documents and figures, many of us entertain a naive notion as to the simplicity of the Agricultural Marketing Act and its sponsors. To paraphrase a line from a recent play, "House Agriculture Committee not born yesterday!" Nevertheless it is lively and entertaining to criticize the sponsors of marketing research on the basis not of what they said but of what we think they thought.

In 1954 Willard Cochrane stated,"Congressmen voted for an increase in funds for marketing research in the hope that such research might solve the price-income problem in agriculture. The collective hope of Congress would, however, seem to run first in terms of one theme and then in terms of another. First theme: if we investigate this great, sprawling, complex marketing system sufficiently we may find an important new market for farm products, an important source of demand that has been overlooked - a voracious maw, if you please, down which farm products may be poured endlessly without cost to the government and with price enhancing consequences. Second theme: the marketing spread between farmer and consumer is too wide-- too much of the consumer's food dollar goes to middlemen-- and perhaps a part of this spread can be captured for the farmer.

"Now the first of these hopes is grounded in ignorance and make-believe. . . . . The second hope is more like a mirage. . . . They" (the proponents of increased marketing research in the Congress of 1946 and in the Congress and the Administration of 1954) "are looking for miracles; they are looking for surplus-removing, price-raising panaceas, which I for one don't think exist."[1/]

The crudest and most brutal criterion for measuring the success of marketing research is what happens to the farmer's share of the consumer's dollar. On this point W. E. Folz has commented, "The farm-to-consumer spread is computed by such a method that when prices rise, the farmer's share of the consumer dollar invariably increases; when prices decline, it invariably decreases. Since the problem of securing an adequate return for the farmer is most acute during periods of declining prices, the use of . . . (this measure) . . . .

1/ Cochrane, Willard W., "Agricultural Economics in the Decade Ahead" Journal of Farm Economics, Proceedings Number, December 1954, pp. 817-819.

places a statistical handicap on the research program at the outset."[1/] On this basis we were licked before we started; the farmer's share has declined steadily from the near-record level of 52 percent in 1946 to 41 percent in 1955. We are even worse off than the character in Stephen Crane's poem, which begins, "I saw a man pursuing the horizon."

If we search for bald statements of these alleged objectives in the Agricultural Marketing Act itself we meet with only partial success. Section 202 reads in part as follows: "The Congress hereby declares that a sound, efficient, and privately operated system for distributing and marketing agricultural products is essential to a prosperous agriculture. . . . . It is further declared to be the policy of Congress to promote . . . . a scientific approach to the problems of marketing, transportation, and distribution of agricultural products similar to the scientific methods which have been utilized so successfully during the past eighty-four years in connection with the production of agricultural products. . . ." The Act details a wide range of specific objectives, for example "that marketing methods and facilities may be improved, that distribution costs may be reduced and the price spread between the producer and consumer may be narrowed, that dietary and nutritional standards may be improved, (and) that new and wider markets for American agricultural products may be developed . . . . . with a view to making it possible for the full production of American farms to be disposed of usefully, economically, profitably and in an orderly manner." The last clause lends some support to the quest for a "voracious maw", but the phrase about the price spread does not necessarily imply that farm prices will be enhanced by its reduction.

Among the founding fathers, none could be more knowledgeable than Congressman Hope. In 1951 he gave a lecture in the Department of Agriculture auditorium in which he discussed the history and background of Title II and expressed his opinion as to the progress that had been made in carrying out the program contemplated under that title. While he points out that one of its progenitors, the late Congressman Fulmer of South Carolina, was indignant at the size of the market spread, he goes on to say, "I think it should be noted that the concern which was expressed by Mr. Fulmer was directed just as much to the high price which the consumer had to pay as it was to the low price which the farmer received."

Congressman Hope's address laid chief emphasis upon a feature of the Act that I for one had completely forgotten. He said, "The overall purpose of Title II was to improve the marketing and distribution of agricultural products. This was to be achieved in three principal ways: (1) to bring together into a single agency all administrative units in the Department of Agriculture dealing with the distribution of agricultural products, whether in the fields of research, service or regulation, (2) to carry out marketing research on a scale where it ultimately would be comparable with production, (3) to separate marketing activity programs from those dealing with price supports, production controls, and government purchasing programs."

[1/] Folz, William E., "Regional Research - A Critical View", Proceedings of the Western Farm Economics Association, July 1955, p. 138.

"It was further believed that if all agricultural marketing activities could be combined in one agency, it would give marketing a tremendous impetus and enable it to match production.

"It is not necessary for me to say that the results under the Research and Marketing Act have been disappointing . . . . . It is my view that the partial failure of the Act is due primarily to the fact that the intent of Congress with respect to the administration of Title II has never been carried out."

Evidently Congressman Hope saw Title II not as a vehicle for directly levitating the farmer's percentage but as a charter for the Agricultural Marketing Service. As I left AMS within a few months of its establishment, I am not in a position to judge whether Congressman Hope's aspirations for it are on the way to realization.

The impression I get from reading Title II and Congressman Hope's analysis of it is that the founding fathers did not propose to judge marketing research by arbitrary and unrealistic standards. Our charter is, in fact, exceedingly broad. We are to apply "a scientific approach to the problems of marketing, transportation, and distribution of agricultural products" and increase the efficiency of this sector of the economy without prejudgment (as I see it) concerning the short-run or long-run allocation of benefits between farmers and consumers.

But this freedom from arbitrary criteria does not mean that there should be no criteria at all. One of the real difficulties in promoting marketing research is to explain, rationalize and justify the continuing and inconclusive nature of the pursuit of marketing efficiency. It is natural to hope that certain tasks will be done once and for all. This sentiment pops up in a sentence on page 9 of the preliminary program for this workshop, which refers to "the solution of marketing problems." Specific problems, narrowly and technically defined, may be solved permanently. But many of them lose economic interest and relevance; within a few years it is a matter of little consequence that they had been solved except as they provided necessary links in an endless chain of economic development.

What frustrates the pursuit of an increased farmer's share of the consumer's dollar is the fact that farming is a highly competitive business, and temporary gains in farm prices that might result from more efficient marketing are rapidly eliminated by increased farm production. If the marketing system is equally competitive, potential gains in efficiency disclosed by research will be brought to fruition by competitive pressures of the innovators upon other marketing firms; as time goes on these gains are passed on to the consumer. The consumer absorbs and consolidates them into a continuously rising level of living. This rising level of living among nonfarm workers is the magnet that attracts out of agriculture many young people, and some older ones, who might otherwise be driven out by the pressure of competition with other members of the farming community. In a competitive economy there is no room for permanent solutions; the only way to perpetuate some temporary advantage is through monopoly. The competitive economy offers no resting place even for those of us whose demands are modest, like the man who didn't want an unfair advantage but only a fair one.

Thus agriculture and the agricultural marketing system, or at least large segments of it, are still sufficiently competitive to produce the result which

Adam Smith referred to in a famous passage. The annual revenue of society is precisely equal to its annual product. In a competitive industry, each individual tries to maximize his income by maximizing his production from a given set of resources -- that is, by maximizing his efficiency. In this fashion, says Smith, "Every individual necessarily labors to render the annual revenue of the society as great as he can. . . . . He intends only his own gain, and he is in this, as in many other cases, led by an invisible hand to promote an end which was no part of his intention."

I can't help wondering whether marketing researchers, scattered as we are among a hundred or more agencies, with limited contacts and knowledge of what the other fellow is doing, with tendencies to lubricate the squeaking wheel and at times to accept uncritically the layman's definition of his own problem, are not also operating according to the Smithian pattern. Of course, we intend to promote the public interest, or at least the farmer's interest; very frequently, however, we don't know how much we are promoting it and sometimes wonder what we would say if we were pressed for an estimate of our contribution. In many cases we are led, "as by an invisible hand", to promote ends which were no part of our intentions. (As scientists I think we should be annoyed by this last situation and I have some suggestions on ways to improve it). It may be that by pursuing particular local problems we are promoting the interest of society as a whole more effectively than if we really intended to promote it. But I don't believe we should leave this hope unanalyzed.

The next section of this paper presents a possibly useful framework for appraising the consequences of some types of marketing research and for selecting research strategies. The final section brushes lightly over two other frameworks for appraising marketing research, those offered respectively by the subject matters of the seven appraisal groups and six seminars about which the 1956 National Workshop on Agricultural Marketing is organized.

II. A Partial Framework for Appraising Marketing Research - The Spatial Equilibrium Model

Table 1 shows the price, production, and consumption of a commodity in each of ten regions, and the volume and pattern of interregional trade in the commodity. I propose to tie a good deal of discussion around this array of figures and the framework which gives rise to them.

Some of the points I want to make could be made more simply in terms of national aggregates. Why then do I bring in the spatial or geographical aspects of the marketing system? I do this because much of our marketing research is organized and carried out in individual States; another portion of it is loosely coordinated on a regional basis. I believe that many market researchers still lack a comprehensive grasp of the marketing systems they are dealing with and the extent to which the benefits of their research will be diffused throughout the economy rather than retained locally or will accrue to consumers rather than producers.

Let me explain a little more fully what a spatial equilibrium model is. In the present case it consists of a demand function for livestock products in each of ten regions (see table 2); a set of freight rates for livestock shipments between all possible pairs of regions; and a given level of livestock production in each region. It is assumed that livestock consumption for the nation as a whole will be equal to the national production. Given this basic information, we can determine the prices and consumption of livestock in each region and the pattern of interregional trade which should emerge from the workings of a competitive marketing system.

The quantity figures in table 1 are "grain-consuming animal units" and the prices are at a level roughly appropriate for hogs (per hundred pounds live weight). For present purposes we assume that the prices and quantities apply to the same unit. If the prices are regarded as farm prices of hogs, table 1 implies that the national market is integrated by means of the shipment of live animals from one region to another. (This assumption is made only for purposes of exposition). By adding processing and trade margins in each region to the prices shown in column 2 (equivalent to modifying the constant terms of the equations in table 2) we can appraise the effects of changes in processing or retail margins within a region as well as those of changes in transport costs between regions. To the extent that a marketing research project might reduce any marketing cost (including the cost of marketing feeds and other supplies used in farm production), to the extent that an advertising or promotional activity raises a demand curve in any region, or to the extent that excise taxes, sanitary regulations, or other factors raise prices to consumers in any region, the short-run effects can be evaluated in terms of the present model. "Short-run" implies that the production of livestock in each region remains fixed. For appraising the longer run incidence of some types of marketing research, the model could be extended to include supply functions for livestock in each region. As a matter of fact, table 1 is taken from a model which included supply functions for livestock in each region, demand functions for feed in each region and a set of freight rates for feed between all pairs of regions; the supply of livestock was influenced by prices of both livestock and feed and the demand for feed in each region was influenced by prices and production of livestock. (See Fox, K. A. and Taeuber, R. C., "Spatial Equilibrium Models of the Livestock-Feed Economy", American Economic Review, Vol. 45, No. 4, pp. 584-608, September 1955.)

Table 1. Spatial Equilibrium Solution for Livestock Prices, Consumption and Net Trade Under Approximate 1949-50 Conditions[1]

Region	Price Differential from Corn Belt: (1)	Equilibrium Price (2)	Livestock Consumption (3)	Livestock Production (4)	Net Trade (5)	Origins and Amounts of Net Imports: Corn Belt (6)	Lake (7)	Northern Plains (8)	Delta (9)	Total (10)
	Dollars per unit	Dollars per unit	Million units	Million units	Million units	Million units	Million units	Million units	Million units	Million units
Northeast	.96	17.14	50.51	17.60	-32.91	28.02	4.89			32.91
Corn Belt	.00	16.186	31.85	62.00	30.15					
Lake	-.25	15.92	14.71	20.22	5.51					
Northern Plains	-.09	16.08	4.95	16.89	11.94					
Appalachian	.72	16.90	14.78	14.18	- 0.60	0.60				0.60
Southeast	.88	17.06	10.60	8.98	- 1.62	1.53			0.09	1.62
Delta	.12	16.30	6.27	6.36	0.09					
Southern Plains	.88	17.05	11.59	9.47	- 2.12			2.12		2.12
Mountain	.84	17.01	3.94	3.64	- 0.30			0.30		0.30
Pacific	1.46	17.63	16.91	6.77	-10.14		0.62	9.52		10.14
Total		16.48[2]	166.12	166.12	0.00	30.15	5.51	11.94	0.09	47.69

[1]Quantity figures are "grain-consuming animal units." The prices are at a level roughly appropriate for hogs (100 pounds liveweight) as are the freight rates underlying the price differential column. For present purposes we assume that prices and quantities apply to the same unit.

[2]Weighted by regional livestock production. Price weighted by regional livestock consumption is $16.80.

Table 2. Regional Demand Functions for Livestock Under Approximate 1949-50 Conditions (in million units)

Region	Constant Term[1] (1)	Change in Livestock Consumption per Unit Change in: Livestock price[2] (2)	Per Capita Disposable Income (3)
Northeast	49.68	-1.41	0.0156
Corn Belt	31.51	- .89	.0099
Lake	14.80	- .42	.0047
Northern Plains	5.21	- .15	.0016
Appalachian	18.05	- .51	.0057
Southeast	13.16	- .37	.0041
Delta	7.85	- .22	.0025
Southern Plains	13.16	- .37	.0041
Mountain	4.21	- .12	.0013
Pacific	16.78	- .48	.0053
United States	174.41	-4.94	.0548

[1]The constant terms are at levels appropriate for demand curves at the farm price level. The same slopes (Column 2) are assumed to apply at processor and retail levels in the text illustrations; the constant terms would differ for each market level.

[2]Slopes vary in proportion to human population in each region. They imply a price elasticity of demand for livestock of about -0.5 at the farm level.

The basic idea of table 1 can be illustrated simply with the aid of figure 1. There are two regions; Region 1 produces 70 units and Region 2 produces 30 units. The demand curve in each region is given. (An unusual feature of figure 1 is that the demand curve D-2 seems to slope in the positive direction. This is compensated for by the fact that the quantities produced and consumed in Region 2, namely Z_2 and Q_2, are measured from right to left). If there is no trade between the two regions, the price in Region 1 will be 60 and the price in Region 2 will be 140. But if there is trade between them, the price in the exporting region will be equal to that in the importing region minus the transport cost.

Thus, if the freight rate between the two regions is 20, the price in Region 1 will rise to 90 and that in Region 2 will fall to 110, that is to the Region 1 price plus freight. As the price in Region 1 rises, consumption in Region 1 declines and the quantity exported increases. These results appeal to common sense; among other things, we would expect a lowering of freight rates to encourage more interregional trade, as in fact it does.

We can use figure 1 to illustrate the confusion that laymen may feel regarding the incidence of a change in freight rates. To begin with, before there is any trade between the two regions the price in Region 2 is 140 and that in Region 1 is 60. Now, suppose a consumer in Region 2 learns that a railroad has been completed between the two regions and that the freight rate is 20. Hearing also that the commodity is selling in Region 1 at a price of 60, he may conclude that he will shortly be able to buy the commodity at the price of 80 per unit. At the same time a farmer in Region 1, learning that the price in Region 2 is 140, may conclude that he will get 140 - 20 = 120 for each unit he ships to Region 2. These expectations are, of course, inconsistent because each party assumes that he will get the entire benefit of the freight reduction. Actually, the benefits of freight rate reduction are shared between the two regions in proportion to the ratios of the slope of the individual curves to the sum slopes of the two demand curves. As the slopes of the two demand curves in figure 1 are equal, the benefits of freight rate reduction are shared equally between them.

In most of the discussion that follows, I will assume a pattern of relationship between the Corn Belt and other regions which is essentially that of figure 1. This simple pattern is shown in the lower part of figure 2. For example, if the freight rate between the Corn Belt and the Northeast is reduced by 10 cents, the Northeast may be regarded as Region 1 and all the other regions combined as Region 2; the results of the freight rate reduction are shared between the Northeast and all other regions in a proportion determined by the slope of the demand curve in the Northeast relative to the sum of slopes of the demand curves in all ten regions.

The upper diagram in figure 2 is something of a digression.

The equilibrium pattern of shipments and price differentials shown in table 1 proved to be quite complex. If the freight rates between the Corn Belt and the Northeast were reduced in this model, prices in five other regions in addition to the Northeast would fall relative to the price in the Corn Belt. Alternatively, if the freight rate between the Corn Belt and the Southeast were reduced by eight cents or less, the price in the Delta would fall by a similar amount relative to that in the Corn Belt. But if the freight rate between the Corn Belt and the Southeast were reduced by more than eight cents, the Delta would stop shipping to the Southeast and would ship instead to the Southern Plains.

Figure 1. Basic Idea of Spatial Equilibrium Illustrated for a Two-Region Model with Fixed Quantities Produced in Each Region

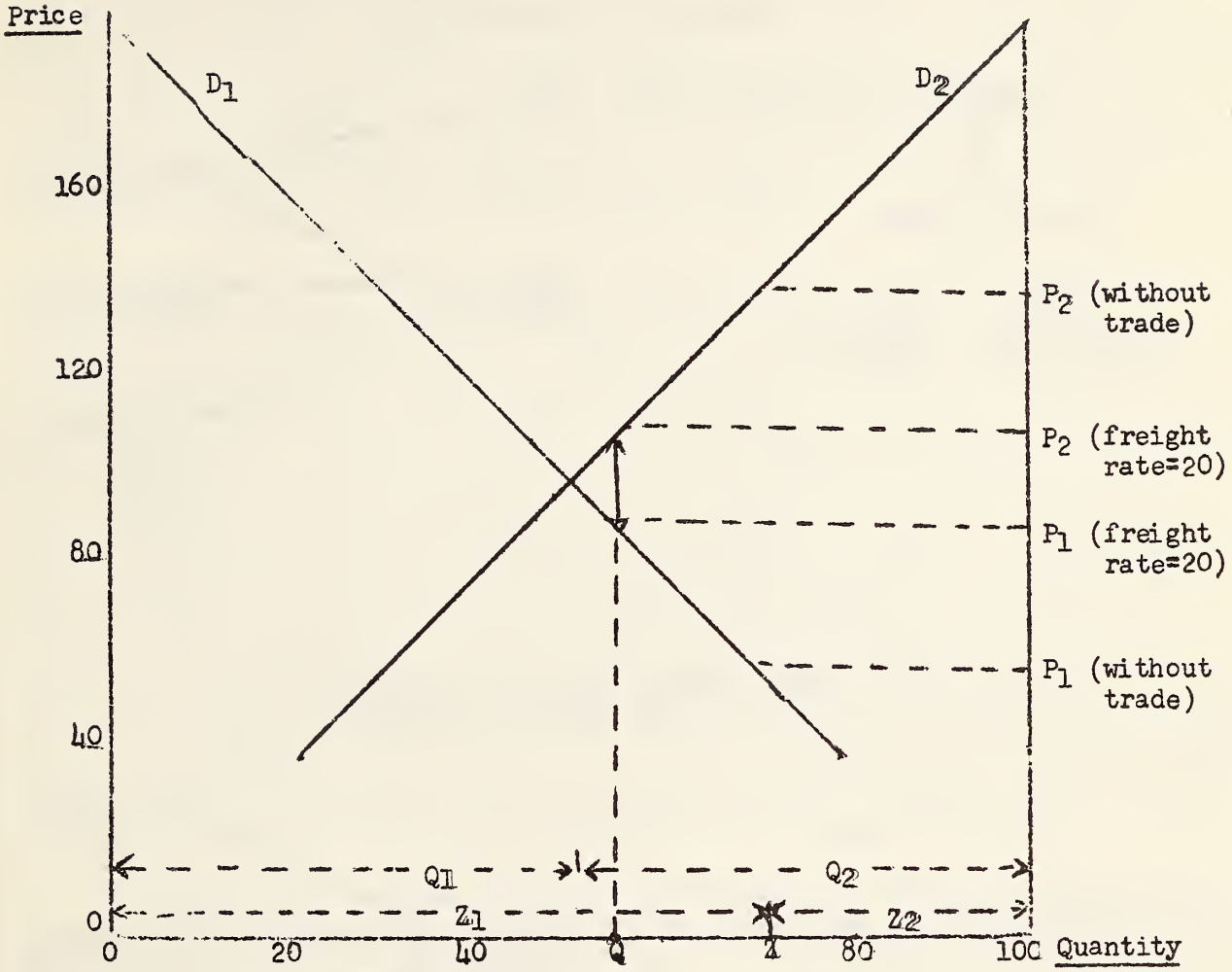


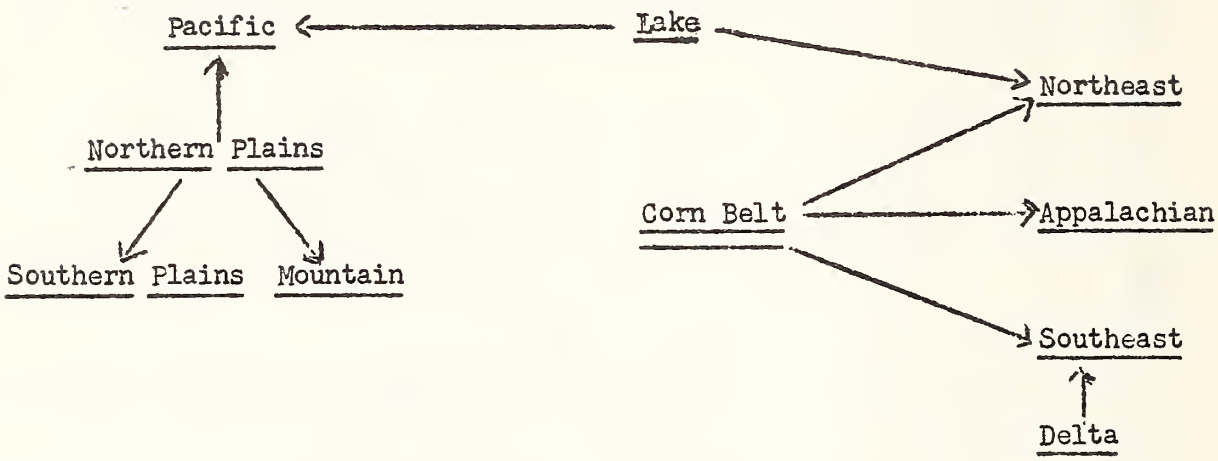
Table 3. - Effects of transport cost upon prices, consumption, and trade[1/]

Production:	Z_1	70	70	70	70	70
	Z_2	30	30	30	30	30
Transport cost:	T	Over 80	40	20	10	0
Prices:	P_1	60	80	90	95	100
	P_2	140	120	110	105	100
Consumption:	Q_1	70	60	55	52.5	50
	Q_2	30	40	45	47.5	50
Trade:	Z_1-Q_1	0	10	15	17.5	20

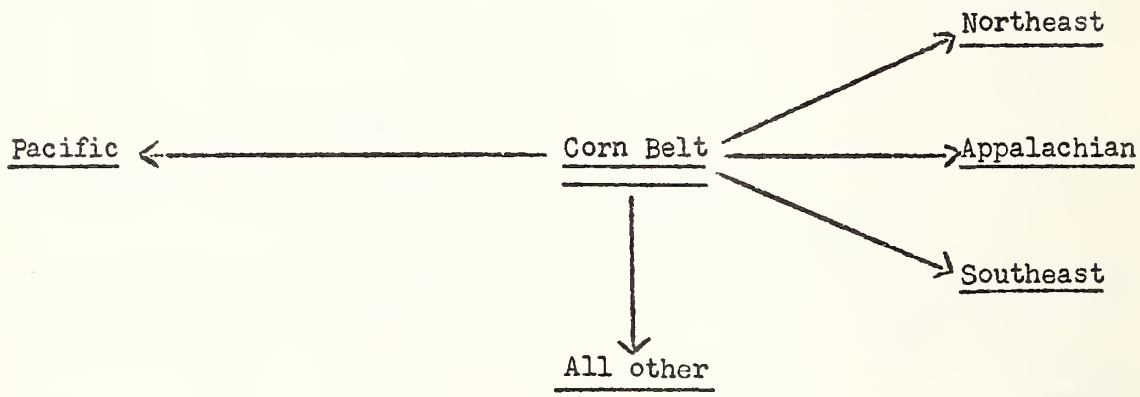
[1/] Subscripts refer to Region 1 and Region 2 respectively.

Figure 2. - Patterns of Connection between Prices in Different Regions
(Arrows indicate paths and directions of shipment)

I. Equilibrium Shown in Table 1



II. Simple Pattern used for Exposition



The first change illustrated is a 10 per cent reduction in all interregional transport costs, worked out in terms of the ten region model of table 1 and shown in table 4. Freight rates over which livestock products were actually shipped averaged about $1.10 per unit; hence the 10 per cent reduction in freight rates averaged around 11 cents. The original price difference between the Lake and the Pacific regions was $1.71, so the price differential between them was reduced by 17 cents. Prices fall in every one of the deficit regions and rise in each of the surplus regions. With lower prices, consumption increases in the deficit areas; with production in each region assumed fixed, this means corresponding increases in net imports. Prices in the surplus regions rise sufficiently to reduce consumption and provide the desired increase in total exports (equal total imports). This accords with our intuition that a reduction in freight rates tends to increase interregional trade.

Table 5 summarizes the effects of changes in a number of interregional freight rates and in the retail margins of individual regions, interpreted according to the simplified model of figure 2, II. Here again one might ask, what would a lay observer expect to happen when freight rates were reduced between the Corn Belt and another region? For example, the Pacific region imports 10.4 million units from the Corn Belt while the Appalachian region imports only 0.60 million units. Surely a reduction of the freight rate between the Corn Belt and Pacific regions would be a much more important event than between the Corn Belt and Appalachian. But important to whom? Our analysis supports the fact of greater importance to the two railroad lines affected, but the effect upon farm prices in the Corn Belt is almost identical in the two cases. The answer is that, in a nationally-closed model of this type, the effect of a reduction in the freight rate between any one region and the others as a group is determined by the slope of its demand curve relative to the sum of the slopes for the ten regions; it does not depend upon the volume of trade passing between it and other regions. As the slopes of regional demand curves are proportional to regional population, the effect on Corn Belt prices of a reduction in freight rates between the Corn Belt and the populous Northeast is almost three times as great as one between the less populous Pacific and Appalachian regions.

The second part of table 5 shows some effects of changes in retail margins in individual regions. Some of these may be surprising. Assuming no production response, a reduction of $1 in retail margins in all regions would mean an increase of $1 in farm prices. But a reduction of one dollar in retail margins in the Northeast alone would cause retail prices there to fall by only 71.5 cents; farm prices in all regions including the Northeast would rise 28.5 cents, as would retail prices in the nine other regions. The extent of such nation-wide effects relative to those in a given region diminishes with the population of the region. Thus, consumers in the Pacific and Appalachian regions would get 90 per cent of the benefit of the assumed reduction in local retail margins; consumers in the Northern Plains would get 97 per cent of the total benefit. This last item suggests a basic limitation of the "pork lifts" which sprang up in various Iowa communities a few months ago. Prices of pork are determined on a nation-wide market. If Iowa retailers voluntarily sacrificed part of their margin, most of the benefits would go to Iowa consumers. Iowa producers would be benefited price-wise in about the same ratio that the population of Iowa bears to that of the nation as a whole.

Table 6 assumes that the national price structure is integrated on the basis of interregional movement dressed meats and that the freight rates underlying Table 1 apply to pork rather than to hogs. Under these assumptions, a reduction in processor margins in the Corn Belt would lead to a corresponding increase in the farm price of hogs in the Corn Belt and to no change in hog

prices in other regions so long as supplies remained fixed. However, if we assume some response of supply to the higher price, the increase in production in the Corn Belt reduces prices of dressed meat on a nationwide basis. Assuming unit elasticity of supply in all regions, the final effect of a 30 cent reduction in processor margins in the Corn Belt would (in our model) be an increase of 21 cents in the price of hogs in the Corn Belt and a decrease of 9¢ in other regions. Given a supply response of the type assumed, retail prices of pork would be reduced in all regions including the Corn Belt. The effects of a reduction in farm-to-plant trucking costs in the Corn Belt would be the same, on a proportional basis, as those for a reduction in processor margins.

Table 4. Effects of a 10 percent reduction in all interregional transport costs upon prices, consumption and trade in the 10-region model

Region	Changes from original equilibrium 1/		
	Livestock Prices	Livestock Consumption	Net Trade 2/
	Dollars per unit	Million Units	Million Units
Northeast	-0.036	0.05	-0.05
Corn Belt	.064	-.06	.06
Lake	.084	-.03	.03
Northern Plains	.074	-.01	.01
Appalachian	-.006	.00	.00
Southeast	-.026	.01	-.01
Delta	.054	-.01	.01
Southern Plains	-.026	.01	-.01
Mountain	-.016	.00	.00
Pacific	-.086	.04	-.04
Total	3/	.00	.00

1/ As shown in Table 1.

2/ Positive numbers are exports; negative numbers are imports.

3/ Average weighted by regional consumption would be approximately zero.

Table 5. - Price effects of specified changes in marketing margins, assuming no supply responses

Initial Change	Changes in Corn Belt		Changes in other region specified		Trade over route directly affected:	
	Farm Price	Retail Price	Farm Price	Retail Price	Base Volume	Direct Reduction in freight revenue
	Cents per unit	Cents per unit	Cents per unit	Cents per unit	Million units	Million dollars
A. Reductions in interregional freight rates						
1. Between all regions (10 per cent)	6.42	6.42	----	----	47.69	5.29
2. Between Corn Belt and Northeast (10 cents)	2.85	2.85	-7.15	-7.15	32.91	3.29
3. Between Corn Belt and Pacific (10 cents)	0.97	0.97	-9.03	-9.03	10.14	1.01
4. Between Corn Belt and Appalachian (10 cents)	1.03	1.03	-8.97	-8.97	0.60	0.06
B. Reductions of $1.00 in retail margins						
1. In all regions	100.0	0.0	100.0	0.0		
2. In Northeast	28.5	28.5	28.5	-71.5*		
3. In Pacific	9.7	9.7	9.7	-90.3*		
4. In Appalachian	10.3	10.3	10.3	-89.7*		
5. In Corn Belt	18.0	-82.0*	18.0	18.0		
6. In Northern Plains	3.0	3.0	3.0	-97.0*		
C. Effect of sales tax in Corn Belt ($1.00 per unit)	-18.0	+82.0*	-18.0	-18.0		

*Identifies region and market level at which initial change was made.

Table 6. Price effects of specified changes in processor margins and farm-to-plant trucking costs, assuming that national price structure is integrated on the basis of interregional movement of dressed meats.

Initial Change	With supplies fixed	With unit elasticity of supply in all regions 1/
	cents per unit	cents per unit
A. Effects of 30 cents reduction in processor margins in the Corn Belt		
Change in farm price in:		
Corn Belt	30	21
Other Regions	0	-9
Change in retail price in:		
Corn Belt	0	-9
Other Regions	0	-9
B. Effects of 10 cents reduction in farm-to-plant trucking costs in the Corn Belt		
Change in farm price in:		
Corn Belt	10	7
Other Regions	0	-3
Change in retail price in:		
Corn Belt	0	-3
Other Regions	0	-3

1/ On the basis of fragmentary information on supply elasticities for different classes of livestock, this degree of response would probably take at least two years for hogs and three years or more for all grain-consuming livestock combined.

As noted earlier, it is possible to elaborate the spatial equilibrium model to include more market levels and more sources and destinations. In the livestock case, a model could include a set of transport costs for live animals from each farming area (say a group of counties) to each of a considerable number of packing plants; also, a complete set of transport costs from major packing plants or packing centers to specific consuming centers. Information on the cost functions of each major packing plant would supplement this picture. An equilibrium solution of the model would minimize the total cost of farm-to-plant and plant-to-consumer transportation plus processing charges for the economy as a whole; it would incidentally throw light on forces making for the decline of some packing plants or centers and for the profitability of potential new plants in certain areas.

One more thread may be woven into the spatial equilibrium framework under the heading of "hypothetical strategies for State-sponsored research." How should a State institution select marketing research projects and allocate personnel and funds to them? Possible strategies could be classified on a geographical basis according to whether the objective is (A) to concentrate on projects which retain maximum benefits within the State; (B) on projects which retain maximum benefits within a region; or (C) on projects which return maximum benefits on a nation-wide basis. Under each of these geographical areas of maximization, the state might pursue, in its marketing research, strategies oriented (1) to farmers, (2) to consumers or (3) to the net advantage of the State, charging losses to consumers over against gains to producers and vice versa. These three strategies may be illustrated in mathematical, or pseudo-mathematical, form as follows:

1. Farmer - oriented strategy:

(1) Maximize $\dfrac{\partial\left[z(P_f - c_f)\right]}{\partial r}$,

where z is farm production and P_f and c_f are farm prices and costs, all in the given State; r is outlay for research.

2. Consumer-oriented strategy:

(2) Minimize $\dfrac{\partial\left[q(P_r)\right]}{\partial r}$,

where q is final consumption and P_r is retail price in the given State; r is outlay for research.

3. Maximum net gain to State:

(1)-(2) $\dfrac{\partial\left[z_j\,(P_f - c_f) - q_j\,(P_r)\right]}{\partial r}$,

to be maximized for commodity j if $z_j > q_j$;
to be minimized for commodity j if $q_j > z_j$.

To actually quantify any of these strategies, or to appraise the incidence of benefits from the array of marketing research projects now under way in a State, would require greater resourcefulness and imagination than has yet been applied to this task. It may be, of course, that the potential benefit from knowing these things would not justify the cost of finding them out. At least, it is a challenge to research men and administrators on the conceptual level. If they are not using conscious strategies based on some principle of maximizing economic benefits, what criteria are they using?

With our present level of information, I am not sure that we can answer even the most elementary questions along this line: (1) Do we know whether "areas of maximization" A, B, and C lead to substantially different allocations of research among commodities and market functions? (2) Do we know the proportions in which each of the three orientations are being pursued in each State? Would it make any significant difference (a) if farm-surplus States concentrated exclusively on farmer-oriented strategies and farm-deficit States on consumer-oriented strategies, as compared with (b) each State pursuing the "net gain to State" strategy?

III. Other Frameworks

The hard and original parts of this presentation are nearly over. I propose to make some remarks first according to the outline of appraisal group topics and second according to that of the technical seminars.

A. Appraisal group topics.

1. The first appraisal group is concerned with marketing information and statistics and outlook analysis. In this area I can only exhort you to "know your tools." By this I mean first that we should satisfy ourselves as to the level of measurement error in our various reported figures, both the random component and the component that may represent bias in reported price ranges relative to average prices received by farmers. We should apply analytical models to the various bits of market information that we publish: Who reads this information? What could he learn from it? Can a farmer actually make money by studying this market information - i.e., will it enable him to gauge future prices with better than random accuracy or to select the more profitable place at which to deliver his hogs at a given time? Some work done at Illinois University suggests that farmers cannot "beat the market" by anticipating short-run price changes at Chicago; perhaps there is more of an opportunity to profit by following price relationships between markets when two or more are accessible to a given farmer.

In the same category is research on the forecasting value of early-season indications of crop yields and livestock production. Members of the Statistical and Historical Research Branch of AMS have now made such analyses for a considerable number of farm products. An analysis of standard errors of forecasts from single equation and simultaneous equation models used in connection with outlook work is also desirable, in addition to an empirical check on the past correspondence between forecasts and actual outcomes. Here again, some work has been done in the Statistical and Historical Research Branch; the problem has been recognized for many years.

I would like to advert briefly to figure 3 labeled "hypothetical effects of outlook work upon outlook predictions". This is an attempt to gain some

useful perspective on an old, old chestnut. I suspect that at the first annual Outlook Conference in 1922 or 1923 someone raised the question, "What happens to our predictions if the farmers take them seriously? If any sizeable number of farmers adjust their production to the outlook, the outlook itself may be vitiated."

The crucial question, it seems to me, is how large a fraction of the producers of a commodity will respond to the outlook forecasts and just how will their responses differ from those of farmers who either don't hear the outlook information or who ignore it? Is outlook information only for a select few or does it reach really large numbers of producers? I would like to see some investigations as to what percent of the farmers in certain States use outlook information; what media have the greatest influence upon them; what the basic limitations of their farm enterprises are with respect to short-run production changes in the interest of profit maximization; and what they actually do in response to outlook information.

Figure 3 is simply suggestive as to how such information might be used. If a fraction k of the producers of a commodity are following a "forward pricing" model based on outlook information, whereas most farmers are still reacting to past prices according to the well-known "cobweb model", outlook forecasts based exclusively on the cobweb model will be biased. If the specialist responsible for outlook information has some knowledge of the size of fraction k and the way in which its members respond to outlook information, it is theoretically possible to forecast a price which will be an unbiased estimate of the actual price outcome.

The situation can be outlined as follows:

A. "Cobweb" model.

1. Outlook predicts $P_{1(c)}$, without allowing for the fact that a fraction of farmers (k) will respond to this prediction according to "forward" supply curve $S_{1(f)}$.

In this case, actual price will be a weighted average:

$$P_1 \text{ (actual)} = k.P_{1(f)} + (1-k).P_{1(c)}$$

$$= P_{1(c)} - k\left[P_{1(c)} - P_{1(f)} \middle| P_{1(c)}\right]$$

In the example of figure 3,

$$P_{1(\text{actual})} = 140 - 0.1(140-20) = 128$$

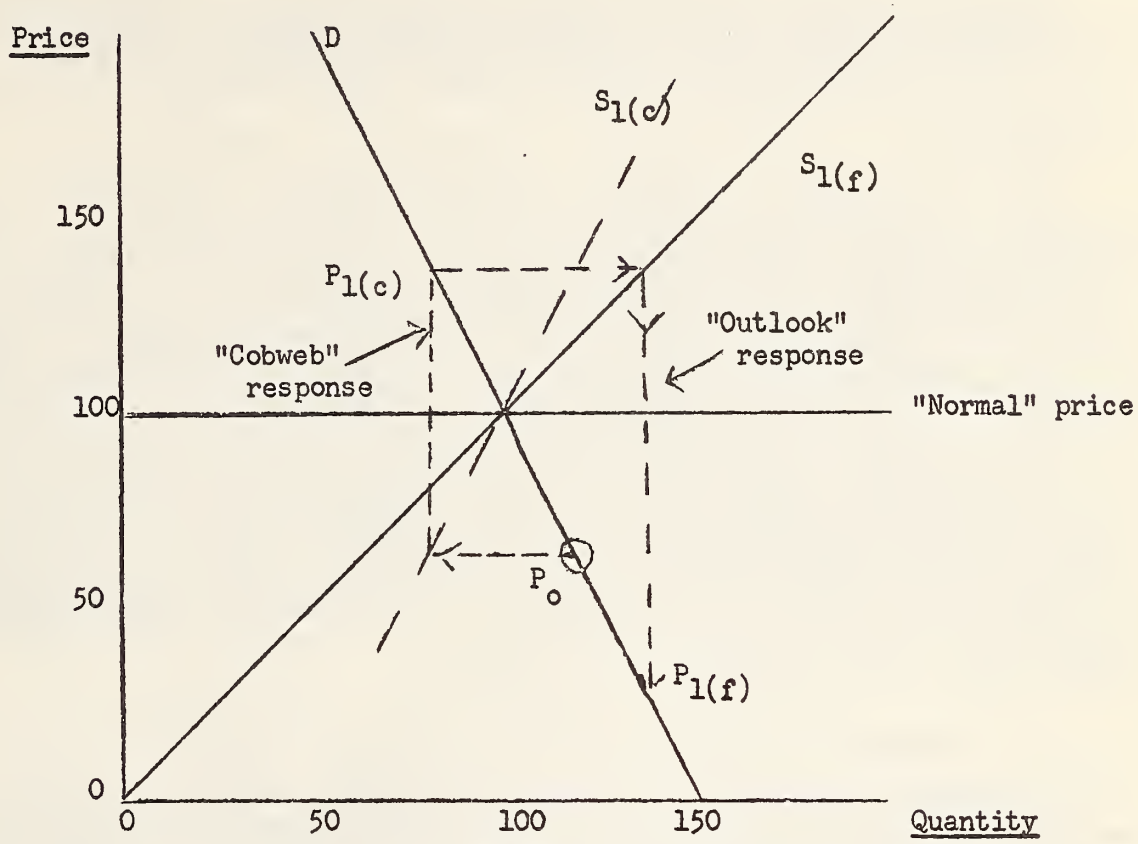
B. "Unbiased" model.

2. Outlook allows for the fact that fraction (k) of farmers will respond to $P_{1(c)}$ along "forward" supply curve $S_{1(f)}$.

On the first level of sophistication, the price P_1=128 might be predicted. But this would lead to a smaller supply than before and an actual price somewhat higher than 128. So the second level involves announcing a predicted price $P_{1(o)}$ such that

$$P_{1(o)} = P_1 \text{ (actual)} = P_{1(c)} - k\left[P_{1(c)} - P_{1(f)} \middle| P_{1(o)}\right]$$

Figure 3. - Hypothetical Effects of Outlook Work Upon Outlook Predictions



Meaning of Symbols:

P_o Price for season just passed

$P_{1(c)}$ Price for current crop if all farmers make historical response to last year's price

$P_{1(f)}$ Price if all farmers make response appropriate to firm expectation that price will be $P_{1(c)}$

$S_{1(c)}$ Supply curve under historical "cobweb" model

$S_{1(f)}$ Supply curve under forward-looking "outlook" model

In the pure mathematical model of figure 3 this can be done.

The actual prices are still subject, of course, to disturbances which may be considerably larger than the second adjustment mentioned. But shouldn't we try to find out what percentage of farmers alter their production in response to outlook information and how their responses differ from those of other farmers?

There are longer-run analogies to this situation in such things as the change in seasonal price patterns over time, as for eggs and hogs. If a poultryman invests in new facilities that will enable him to produce uniformly throughout the year on the expectation that he will benefit from the very high prices historically experienced in October-November, his hopes for the profitability of his venture will not be fully realized if large numbers of other poultrymen also adopt the new techniques. For market supplies during October-November will then be considerably larger than anticipated and the seasonal price peak will be correspondingly lower. When we as marketing research or extension economists imply that certain capital investments would be profitable based on existing seasonal, grade, or type premiums, are we allowing for the effects of widespread adoption of the new technique? Drs. Beal and Bohlen of the Sociology staff at Iowa State are doing some interesting work on the diffusion process - the rate of adoption of new techniques by farm operators, their reasons for doing so, and the channels of communication which are most influential in their adoption of the practices.

2. Pricing and the organization of markets.

A moderate extension of the spatial equilibrium model (i.e. moderate on the conceptual level) should suggest why particular marketing channels carry particular volumes of products. The marketing process may be considered to extend from field to fork, and functions may be shifted from farmers to marketing agencies or from housewives to marketing agencies if the opportunity costs of their time in farm production, leisure, or work outside the home justify it. I think we should be somewhat bolder than heretofore in trying to quantify such theoretical concepts as the marginal rate of substitution of labor for leisure on the part of farmers and of housewives.

I shall say very little about the competitive structure of markets. How many retail firms do we need in a given city for effective competition? Are its consumers as efficiently served by two national chains and a handful of supermarkets as they would be by no chains and a hundred independently operated supermarkets? I am inclined to doubt that consumers would be substantially better off in the second situation than in the first; however, the possibility of "cutthroat" competition between big chains and small independents is disturbing. How serious is the conflict between economies of scale (desirable from a firm standpoint) and competitive structure as aided by a multiplicity of firms? Does a fairly stable percentage allocation of purchases by two packing plants in a given city necessarily mean collusion? If so, and if one is more efficient than the other, would the competitive structure of the market be improved if the more efficient plant drove the less efficient plant out of business?

3. Efficiency of marketing operations.

Here again I think a number of new models and techniques hold promise. Linear programming or activity analysis was developed with the economics of

the firm in mind; so far, I suspect that its conceptual superiority has been limited in practice by lack of data and lack of access to computational facilities on a basis that would enable the programmer to compete with a plant superintendent. The spatial equilibrium model conceptually might be adapted to problems of plant location; economies of scale might be weighed against diseconomies of assembling raw materials to arrive at an optimum number and distribution of processing plants for a given State or region.

4. Product quality: its measurement and maintainence and improvement of quality in marketing channels.

An entire workshop was devoted to this topic at Michigan State in 1951. I still remember (with subsequent embellishments) the notion of a "representative consumer" - a robot which would ogle, palp, and crunch an apple, presumably recording its impressions in units readily interpretable in terms of market premiums and discounts. While less sanguine than the food technologist who evoked this image, I favor pushing objective and statistical measures of quality as far as is economically feasible. I wonder whether Fred Waugh's pioneering work on canonical correlation between observable characteristics of a raw product and those of the foods processed from it has ever been followed up and evaluated? Quality improvement programs at the farm level always raise the question as to the imperviousness of existing price differentials between grades to an increase in the proportion of the higher-priced grade.

5. Market development.

As many of you know, the idea of expanding demand through promotion and merchandising has received a great deal of attention in the Corn Belt in recent months. While it seems self-evident that experience gained in promoting a toothpaste or a particular brand of peas cannot be applied without qualification to promotion at the industry level, I and other economists have been embarrassed by the lack of concrete studies which would refute the hypothesis that such extrapolations can be made. Have there been some well-designed studies of the effects of promotional campaigns on sales of food products, other than those obtained by the time-honored expedient of lowering prices? Have food retailers, particularly the chain stores, sufficiently tested out consumer responses to advertising that they have approximately equated marginal returns from advertising to marginal costs? If so, additional promotional effort of the same type would reduce net returns to farmers rather than increase them. On <u>a priori</u> grounds we feel pretty sure that no dramatic short-term increase in meat prices will come about through an expanded advertising program; but we can't prove it, and we know even less about the longer-run effects of a program based on nutritional education, home demonstrations, television demonstrations, and so on.

6. Public policies and programs affecting market prices and distribution.

I am somewhat disturbed by the limited confidence which economists express in one another's findings in the area of appraising price support, surplus removal, and similar programs. Perhaps this reflects the recency of our aspirations to become scientific in a quantitative sense. It seems to me that if we define accurately the particular program effects we want to measure, get the best available advice on the extent to which available statistical series correspond to the required economic concepts, define, with the aid of commodity specialists and others, the structural system

involved and its implications for methods of statistical estimation, then our analyses should lead us if not to a single answer at least to a limited range of acceptable answers. Perhaps we are approaching the time at which we can accept each other's measurements and computations, but we are moving slowly.

7. General objectives and balance in marketing research.

I have already commented on some aspects of this topic.

B. Seminar topics.

I have already commented implicitly or explicitly on the first four topics. Some leaders in marketing research are learning and adapting modern statistical techniques and non-statistical techniques such as activity analysis, spatial equilibrium analysis, and so on. Three years ago, in reviewing Wold's book on Demand Analysis, I stressed the importance of bringing good theory and technique together with good data and institutional analysis. I said in part, "Statistical demand analysis is a synthesis of several disciplines - economic theory, probability theory and mathematical statistics - applied to concrete data. Each application requires special knowledge of the commodities involved and the adequacy of the statistical series which purport to measure their prices and quantities. This last type of knowledge comes slowly and is most likely to be acquired by economists who are specializing along commodity lines. Few commodity economists have the time or the predilection to master in their entirety the theoretical disciplines upon which demand analysis also rest.

"These disciplines themselves are generally taught in such a way as to discourage anyone from becoming a 'theoretical demand analyst' whose training would prepare him to cooperate effectively with commodity specialists... The verbal economist is too verbal; the mathematical economist too mathematical; and the statistican too disdainful of nonexperimental data. In ignorance or desperation the commodity economist turns to empiricism and it is too empirical." In concluding the review I stated that Wold's book "still reflects the dichotomy which plagues this field - the theory, too mathematical; the practice, too empirical!"

I had fun writing this at the time, but it expressed a conviction that I held and continue to hold very strongly. The problem of achieving effective communication and cooperation between members of our own discipline is almost as difficult as that of achieving communication across major disciplinary lines. I have seen some outstanding examples of interdisciplinary cooperation at Iowa State centered around production economics and land economics; there are doubtless outstanding examples of interdisciplinary cooperation in various phases of marketing research. In this as in other cooperative forms of human endeavor, wanting to is half the battle.

The last two seminar topics I find difficult to separate, but my comments appear to involve the operation of research programs (topic 6) rather than their development (topic 5), as they are defined in the Workshop program.

In particular, I should like to raise questions as to the organization of marketing research at the State colleges. Is there too much commodity specialization among marketing research economists? Would it be better strategy for an organization that has an opportunity to rebuild its marketing research staff from the ground up to split the field along functional rather than commodity lines? For example, one person might concentrate on problems involving marketing firms, another on problems at the industry level, and a third on the analysis of consumer demand. Would this "table of organization" increase the likelihood of major research advances? And would it make a greater contribution per research dollar to the goal of increased marketing efficiency?

MARKETING RESEARCH AS VIEWED BY A FARMER

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I was quite surprised when I received the invitation from Oris Wells to participate in this National Workshop on Agricultural Marketing. He stated that I was qualified in a unique way to speak on research progress from a farmer's point of view. That word 'unique' takes in a lot of territory and I am not sure that Mr. Wells used the right word.

While I probably have been closer to the marketing research program than most farmers still I realize that there is a lot about this program with which I am entirely unfamiliar. I hesitate to make an appraisal of a program, the scope of which far exceeds the area of my contact with it. During my experience as a member of the Grain Research Advisory Committee and presently as a member of the Agricultural Research Policy Committee, I have had opportunity to come into contact with various phases of the marketing research program. But just as educational opportunities impress one with how little he knows in relation to the total that could be known, so my contact with marketing research activities has impressed me with how much there is to this program that I know nothing about. However, the comments I make regarding the phase I am familiar with, when added to those made by others familiar with other phases of the program, may contribute to a total picture that might be of some value. I should at this point emphasize again that my experience in this field is somewhat limited and my appraisal is on this basis.

In evaluating this program, I think it might be well to go back and consider briefly some of the objectives. When the Hope-Flanagan Bill was passed by Congress becoming Public Law 733 and referred to as the Research and Marketing Act of 1946, many were quite optimistic as to the possibility of materially stepping up the total agricultural research program. I am sure you are familiar with this law, but I wonder how long it has been since any of you have actually read it to remind yourself of the purposes and provisions therein. Sometimes we get started down the road and forget to look at the map. First thing we know we have departed some distance from the road we set out to follow originally. We were told among other things that it was the policy of the Congress to promote the efficient production and utilization of farm products as essential to the health and welfare of our people and it was pointed out that Congress believed a prosperous agriculture and rural life were indispensable to the maintenance of maximum employment and National prosperity. The law also states that it is the intent of Congress to assure agriculture a position in research equal to that of industry which would aid in maintaining an equitable balance between agriculture and other segments of our economy. That is a pretty big order and marketing research is an important part of it.

Under Title II, known as the Agricultural Marketing Act of 1946, we find other statements directed toward agricultural marketing which express the thinking of Congress by stating that it is the policy of Congress to promote a scientific approach to the problems of marketing, transportation and distribution of agricultural products similar to the scientific methods which have been used so successfully in the past in connection with production of agricultural products so that such products capable of being produced in abundance may be marketed in an orderly manner and efficiently distributed. That statement certainly gives us something to think about today when our abundant production really raises some questions in the field of marketing. If the findings of marketing research can accomplish the objectives stated in the following words, "that new and wider markets for American agricultural products may be developed both in the United States and other countries with a view to making it possible for the full production of American farms to be disposed of usefully, economically, profitably and in an orderly manner", then research in this field will have accomplished a great deal.

In Section 203 of Title II, we find that the Secretary of Agriculture is directed and authorized to do certain things. I do not intend to list them all, but would like to make special reference to a few.

Sub-paragraph d under Section 203, states that the Secretary is directed and authorized "to conduct, assist, foster and direct studies and informational programs designed to eliminate artificial barriers to the free movement of agricultural products". Whenever the artificial barriers referred to in this sub-section happen to be in the form of Federal Agricultural programs, or Government Policy, then the problem of eliminating them is tremendous.

In my opinion there has been a reluctance to face up to that part of the program and such reluctance is understandable. However, as I meet with various commodity advisory committees, which I do frequently as a member of the Agricultural Research Policy Committee, I find that members of these committees are giving more and more thought to the effect of Government programs on the marketing structure within which we operate at the present time. For instance, at the February 13-15, 1956 meeting of the Grain Research and Marketing Advisory Committee, a recommendation was made under the heading, "Efficiency in the use of Marketing Resources", as follows: "An appraisal should be made of recent changes and adjustments in the use of marketing resources, market structure and marketing practices for wheat and other grains and of the efficiency with which marketing resources are being utilized. <u>The study should include the effect of Federal programs relating to production and marketing of grain</u>." If Government Research people cannot deal with problems of this nature, then such research should be done under contract with an unprejudiced non-government organization. I have been particularly interested in this point for in June of 1950 during a meeting of Research and Marketing Advisory Committee Chairmen, this question was raised with the Agricultural Research Policy Committee. I was one of the chairmen present. We raised the question by stating, "it is the opinion of the committee chairmen that RMA funds should be used to conduct research on subjects relating to National policies as they pertain to agriculture, such

as, (a) matters related to foreign trade; (b) action programs, and; (c) public policy related to transportation. To what extent and in what manner can RMA funds be used in this direction"? In the margin beside this question as written, I had made a notation, "See original". I recall that some change had been made in the wording from the way the question was originally presented to the ARPC. As I recall, the changed wording brought in the policy angle a little more than the original statement, thereby giving basis for the answer made by the ARPC as follows: "Although the committee recognizes that research relating to matters of National policy is not specifically set forth as a purpose in the Research and Marketing Act, it believes the following recommendations and observations are relative: (a) RMA research funds are used to develop basic research findings and factual information much of which is useful in policy formation, however, RMA funds are not used to formulate policy or for specific appraisals of current policy issues. The evaluation of the effectiveness of an action program is an administrative function which should be financed with funds other than RMA; (b) more than usual caution should be exercised in planning and reporting studies which may provide factual information for policy formulation to assure objectivity and clarity of the presentation of results".

The question was raised again in the meeting of the Research Policy Committee July 1, 1955, regarding studies which might indicate the extent to which Federal or state governmental policies will interfere or assist in the solution of agricultural problems. It was reported that some regional studies with the commodity approach were under way and might provide a pattern for further work. I will make reference to one of these regional studies a little later on. I want to make it clear that in raising this question I am not suggesting that agriculture research funds be used as a means of establishing governmental policy. I refer to the kind of research study that could be a basis for building an economically sound Federal agricultural program that would give support to and fit in with a sound marketing program. It appears inevitable that we will need some sort of agricultural legislation to protect producers from bankruptcy at times when they protect the Nation's food and fiber needs as well as our International status by producing in excess of current requirements. I believe we need to know what the long time effect of various kinds of agricultural legislation would be on our marketing system. As indicated previously, such a study would have to be made by a non-government, unprejudiced organization. It would not be for the purpose of criticizing the current agricultural program but would be based on a thorough study of historical data, economic considerations, and political implications. With the facts thus assembled and available to those who are sincerely interested in maintaining equality for agriculture, I believe a sound program could be developed that would give stability to agriculture and protect the Nation's supply of food and fiber, a program so sound economically that it would weather the storms of political attack and give continuity to agricultural planning, such as we have never known. While the above approach would be practical as related to our overall agricultural program, I think it has special significance as we are considering research work on marketing. Foote and Weingarten have done some work on a technical approach to using research results in analyzing Government policies.

Sub-paragraph e of Section 203, refers to the development of new or expanded markets both domestic and foreign also new and expanded uses. The wheat growers of Oregon have been particularly interested in this type of research. Work along this line is long range in character and requires continuity, even though at times it may appear that the current conditions do not justify this type of work. It is easy to miss the boat on this for back in the forties when we did not have surpluses, research groups were advised by Congress that work on foreign outlets should not be engaged in as it appeared that we would have use for all we could produce. Consequently, this type of work was de-emphasized. This is a good illustration of how wrong we can be and how quickly research needs can change. In order to cope with the present supply situation, more research work on new or expanded markets should have been carried on years ago. I do want to point out that the experience of the Oregon Wheat Growers League indicates there are tremendous potentials in this matter of developing foreign markets. This statement is based on Wheat League work in Japan under the provisions of Public Law 480.

We also have had some first-hand experience developing markets for new wheat products. I refer to bulgor currently produced by Fisher Flouring Mills of Seattle, Washington, under the trade name "ALA". It has proved to be quite acceptable to consumers in the Pacific Coast area, as well as by the people in Japan. However, in the latter case there are problems in connection with Japanese Government policies regarding commodities to be imported.

Another phase of market research referred to under this section is that of transportation services and facilities, as well as transportation rates. Sub-paragraph j deals with this subject. I am not too familiar with what has been done under the act along this line, but I do know those of us at the greater distances from the populated areas and their markets face a real problem. We are progressively priced out of markets we have formerly enjoyed and as long as transportation rate increases are made on a percentage basis, we will continue to experience further distortion of competitive price relationships.

I have pointed out just a few of the provisions of the act that should, I believe, receive some more consideration in developing a market research program. Someone has said that research is finding out what to do when you can't keep on doing things the way you are doing them now. There are a lot of things in connection with the marketing of agricultural commodities that will have to be changed and such a statement of course raises the question as to whether the answer to our present surplus supply situation lies in the field of marketing or in the field of production.

The Oregon Wheat Commission has followed the policy, ever since its organization, of supporting marketing rather than production research. We know there is a tendency on the part of most farmers to be more interested in production research because that means more to them. We live closer to production than to marketing. For years we farmers thought all we had to do was to produce the crops, and deliver them to the farm gate, and that the marketing system would absorb them in some way or another and do the job for us. However, we realize that there has to be a balance between production

and marketing. There are two ways to achieve this balance, one is to reduce production, the other to increase marketing. We like the latter, but realize there is a limit to what can be done either way.

Sometimes there is a difference of opinion as to what constitutes market research. The Oregon Wheat Commission has put, along with others, considerable sums in supporting the Western Wheat Quality Laboratory at Pullman, Washington. Some said that we were violating our principle of not putting money into production research, but we consider this very definitely a marketing project. Unless we can produce wheat of high quality and of the type demanded by markets, we find difficulty in marketing. At one time we were producing a large amount of Rex wheat which was undesirable from a miller's standpoint. As a result of the development of wheat varieties better suitable to market requirements, Rex is practically out of production and a major part of present day production is making use of these improved varieties. By improving our wheat varieties to meet market requirements, we are, in part at least, helping to solve a marketing problem. Consequently, that type of research should be considered marketing research, rather than production. Producing varieties with disease resistance, higher yield, and other beneficial characteristics rightly falls within the category of production research. Let's be a little more comprehensive in our idea of just what is involved in marketing research.

One phase of marketing research that has come in for considerable criticism is that of cost and margin studies. I think it is safe to say that the opposition to this type of research is not as great as it was a very few years ago. Farmers are interested in this type of research because there is so much misunderstanding regarding all the factors that make up the total cost of farm commodities at the retail level. Also, many processors that used to oppose this type of research have finally decided that there is much to be gained in having the story told. In spite of all that has been done along this line, there is still much misunderstanding. We, in Oregon, are spending thousands of dollars in a public relations program hoping consumers will be better informed regarding wheat and wheat products.

However, the repercussions of the recent increase in the price of bread of two cents a loaf in our area indicates there is still much to do. In the Oregon Statesman on June 14, 1956, the following statement appeared written by a local housewife: "So the price of bread is going up again. I have to pay taxes so the farmer can keep on producing wheat the country doesn't need, also pay toward the millions of tax dollars required to store a great mass of surpluses. Just how long can wheat be stored before rats will refuse it for food. Is there a law against turning this wheat over to millers so that the price of bread could come down a few cents? I know a few people who don't eat bread, many others could follow their example, then we'd have mostly a high-priced commodity to turn over entirely to the rat family. What a nice picture for over-taxed tax payers." Apparently this lady does not realize that the price of wheat has very little to do with the price of bread, and that even though the price of bread is going up, the price of wheat to the producer is going down.

This lady is not the only one that is confused. The farmer, assuming there is justification for increasing the price of bread two cents per loaf regardless of size, is baffled when he reads that a large baking firm on the West Coast increased their quarterly dividend on common stock from 45 cents to 50 cents a share payable to stockholders of record June 30. The two-cent increase in the price of bread will not be reflected in this dividend but should help the next one unless there is a decrease in sales volume. "Can marketing research help in this situation?", asks the farmer.

The USDA publication No. 712 entitled, "Marketing Margins for White Bread", is a step in the right direction. However, one problem which is generally recognized is the matter of getting the findings of such studies into the hands of the people that should have them. Also, there is the matter of the acceptance of such studies by various groups. I notice that at the National Workshop of 1955, Mr. C. W. Kitchen of the United Fresh Fruit and Vegetable Association, dealt with the subject of inducing trade acceptance of research results. That is a real problem as evidenced by the following. In the May 15, 1956 issue of the Southwestern Miller, there is an article entitled, "Clarity on Bread Margins". This article refers to the booklet just mentioned on "Margins for White Bread", pointing out briefly some of the facts brought to light by this study. This article in The Southwestern Miller winds up by saying, "in publishing this objective study, the Department of Agriculture has rendered a fine service to milling and baking and to understanding between farmers, processors and consumers".

On the other hand, in The Northwestern Miller of the same date, there is an article entitled, "A Great Illusion". This article refers to this same marketing study and publication, but unlike the other article, is very critical. This article interprets the study as inferring that the wheat grower is being cheated of his rightful share of the bread dollar, and points out that the retail price of bread does not influence the price the farmer receives for his wheat. This article concludes by saying, "perhaps we should not quarrel too much with Mr. Benson on this excursion into economic fiction. No doubt there are some farm products in which the retail price is a factor of consequence in the level of consumption of those products. No doubt, too, Mr. Benson has been assailed by his critics with strictures of equally dubious validity and may be entitled to reply in kind. But none of this sort of political twaddle can contribute anything to sound efforts to alleviate agricultural difficulties". Please note the statement herein quoted should not be construed to reflect the thinking of the speaker. I have called these two opposite reactions to this marketing study to your attention merely to emphasize the problem we are facing in this matter of acceptance of research findings. This is a basic problem as indicated by Mr. Kitchen's remarks last year and is one that merits study because of its importance in fields other than marketing research. I am reminded of this because my son, working on his Doctorate in Anthropology, has taken for his thesis the subject of "What Is Involved in Cultural Change". His field work will be carried on with a tribe of Indians way down in Mexico, - one that has been pretty generally shielded from modern influences. He hopes to delve into the matter of just what is involved in this matter of getting people to accept new and different ideas. Such an approach might be practical in connection with our export program for instance, wherein it would be helpful

to know just what it takes to get people who have lived on rice for centuries to change their diet to one which includes wheat. You see I am doing like the experts do, just raising the questions, but offering no specific answers. I notice the evening of the 19th will be devoted to the similar question of "How Farm People Accept New Ideas".

I have been told that in my statement here today I could be critical if I so desired. I would like to make it plain that any statement I make which might be considered critical will be only for the purpose of improving the program and not to criticize any individual. I felt that sometimes research people fail to grasp the importance of their research work and the fact that often it has been undertaken to help meet specific problems in which case the time element is of extreme importance. Now I am well aware of the effect of limitations in money, personnel, and facilities, in carrying out market research projects as well as research projects in other fields. But I do know that farmers have encouraged marketing research in certain areas of activity because of the knowledge of an existing or impending problem. The research work and completion of it should be aimed as far as possible towards meeting this need. For example, when the Oregon Wheat Commission was first organized, the need for statistical information regarding Northwest wheat and wheat movement was very apparent. A cooperative arrangement between the Agricultural Statistics Division of the USDA, the Washington State Department of Agriculture, and the Oregon Wheat Commission was set up. The findings of that project have been available and have served a very useful purpose in our approach to various problems, particularly the one of transportation costs. The Pacific Northwest Grain and Grain Products Association has made a great deal of use of the information derived from this project and the timing of this project has fit in with the need for the findings. Also, the Western Wheat Quality Laboratory project at Pullman, previously mentioned is an example of market research being done to correct a specific situation, as work there has been beamed toward improving the marketability of wheats that can be grown in our area. In this case, the time element is well recognized and much has been done to speed up this research program. This work, started sometime ago, is fitting into our present day needs.

Sometime ago, when I was still a member of the Grain Research Advisory Committee, it was considered advisable to do some work on the effect of Federal Farm Programs on the marketing of wheat in the Pacific Northwest. As a result of the recommendations of that committee, Project No. 164 was set up in which there was cooperation between the Department of Agricultural Economics at Oregon State College, the Bureau of Agricultural Economics, the Pacific Northwest Grain and Grain Products Association, and the Oregon Wheat Commission. The demand for this study came from the fact that in looking ahead a real marketing problem was seen looming up for wheat in that area. Now we are right in the middle of this situation that was anticipated, and had hoped that such a study could be of material help to us at this time. However, a report on the progress of this project was received about a year ago, which points out the nature and extent of work done during the previous year and the major results for the year which, generally speaking, was the compilation of various statistical information and some statements regarding various aspects of the marketing situation. This part of the progress report winds up by pointing out, "to be able to

compete effectively and to sell substantial volumes of wheat in domestic markets one or more of the following adjustments is necessary: (1) Reduced transportation charges out of the region; (2) reduce wheat support prices in the region; (3) raise wheat support prices outside the region; (4) restore free prices for wheat". Then the progress report continues that the outlook for further work involves the appraisal of different wheat programs to determine the probable effects of each program on the wheat industry in the Pacific Northwest. The progress report also states that the practical application of results or public benefits to date is nothing, and that the proposed procedure for research during the next fiscal year which has just ended was; (1) get this manuscript printed; (2) complete the analysis of effects each of several price and/or production plans would have on the marketing of Pacific Northwest wheat and to attempt to find or develop a plan that is sound and generally satisfactory. It appears that the prime objective of this project is still ahead and there is a big question as to when it can be completed. I have just checked with the project leader and find that very little has been accomplished during the second year of this project. It started over three years ago and made use of a graduate student who intended to use this work as a basis for his doctor's thesis. However, he decided to take on other work in the College, dropping this and it was then necessary to make use of another student who was a candidate for his Master's Degree, but who did not have the background of study for this project that the former student had. The project leader teaches in the Department of Agricultural Economics, and, of course, cannot carry on research work while teaching, as he has frequent interruptions by students calling on him, etc. It has taken a full year to get the manuscript printed, and it has just come to me, a year after the progress report was received. A request for a year's renewal of this project has been turned down by the Department of Agriculture. Under the circumstances, this may be a proper decision unless steps can be taken to expedite the completion of this project. Another year of half-hearted work on this project would probably be of no advantage.

The thing I wanted to point out is that the second phase of this project, namely, to complete the analysis of the effects of each of several production plans would have on the marketing situation of Northwest wheat, and attempt to find and develop a plan that is generally sound and satisfactory is the heart of the project and the basis of the work we were suggesting several years ago when the need for this type of project was apparent. Now it appears the prospects are rather slim for it being of any great help to us in the present situation. As I said before, I am blaming no one in particular, but just pointing up a specific example of how research work falls by the wayside because it is not expedited with sufficient consideration given to the time element. Too little, too late, it might be said while too much, too soon might describe the present situation wherein we have more than we need before we know what to do with it.

I would like to cite another example which shows that there is room for improvement in tying research studies closer to the existing problem, particularly in connection with the time element. About a year ago a study of the cost of handling wheat received by railroad and motor truck at port terminal elevators in the Pacific Northwest was initiated. This was part of

an overall study on the movement of grain by railroad, motor truck, and water as recommended by the Grain Research and Advisory Committee at its meeting January 26-28, 1955, at Peoria, Illinois. The Pacific Northwest phase of it was initiated earlier then the rest because of the urgency of the situation in that area and we are appreciative of this fact. Our state wheat growers' organization was under the gun because quite a few members were asking this organization to take a specific stand on this matter of the 4-1/2 cent discount on the loan rate for wheat hauled to terminal by truck. The organization felt that the study being made by the Agricultural Marketing Service would be very helpful and hoped that the results of this study would be available before it was necessary to take a specific position. In attempting to get some of the results of this study, we were told by the Department, "as soon as a report is available, the results will be supplied to program agencies of the Department for administrative use. Although no general releases have been planned, the findings may be incorporated with those obtained from an overall study of grain movement by rail, truck, and water carriers which will be underway within the next few months".

Now while we appreciated the way in which this Pacific Northwest phase had been expedited, we certainly were disappointed with the indication that we could not make use of the findings until the overall study would be completed, and the overall phase had not even been started at the time we received this word from the Department. I realize that the findings of such a study must of necessity be reviewed by the Department before being released, but the indication that it would not be available until the overall study had been completed was entirely out of line with the urgent need for the findings of this study. It indicated a lack of recognition of the importance of the time element. Later this difficulty was resolved and the study did assist the Executive Committee of the Oregon Wheat Growers League in working on this program. I point out this example to emphasize the fact that perhaps people working in marketing research are not sufficiently aware of the practical aspects of these studies. In other words, are these projects just more jobs to be done? I should think it would make the work much more interesting if those in charge of it could realize, and perhaps they do, that the study is being carried on to meet some real existing or impending problems. If it is impossible to carry on research projects and complete them in time to be of some value, then there would be no use in putting money into that project. Perhaps a little more attention should be paid to classifying projects in regard to urgency as compared to the type of study that is perhaps more fundamental in nature and for which the time element is not so important.

Another criticism on marketing research work is that the Government should not spend money figuring out how to save time and increase efficiency in the handling of stocks and supplies. Some seem to think that anybody smart enough to be in business would be smart enough to figure that one out. We farmers realize that larger industrial concerns and larger marketing organizations with greater resources and specialized personnel may be in a better position to cope with these problems than smaller operators, and are not in need of efficiency studies to the same extent.

The present situation requires that we evaluate carefully the place of research in the present picture. Once in awhile, not too frequently, we hear criticism of research that enables farmers to produce more at a time when we have too much for current needs. Also, marketing research that results in

increased efficiencies reducing losses and wastes through better handling methods makes the supplies we do have go farther while the crying need of today is to use more of what we produce rather than less. Should we slow down our research program until consumption catches up with supply? That, in my opinion, would be dangerous. Even the present situation does not justify wasteful and inefficient marketing methods. Who knows what is ahead, or just when the situation might change so suddenly that we would be thankful for the marketing research that is being done, for the knowledge of how to distribute efficiently and without waste.

Marketing research should, in the long run, result in higher prices to the producer and lower prices to the consumer. If it can do that, no one can complain.

In conclusion, let me say that I have covered a very small phase of marketing research work. It is natural that some part of the work will be approved by some and opposed by others depending what their individual interest might be. I realize the position that research workers are in when, for example, they are carrying out studies in line with Congressional direction, but at the same time being opposed perhaps by industry or other groups.

As I look at the overall program of marketing research, I believe we have come a long way since the passage of the Research and Marketing Act. Still, I think there is much ahead of us to do. Marketing research can serve to open the passageway through which agricultural production must flow. If the gate is too narrow, there is overproduction and the piling up of supplies. To the extent we can widen this gate expanding outlets, the supply situation will be improved. Marketing research offers a real challenge, one which we cannot afford to ignore.

The acceptance of the marketing research program will, I believe, depend upon the importance of the work planned and the extent to which the findings contribute to the solution of current and future problems.

MARKETING RESEARCH APPRAISAL

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During the World War II period, I was closely connected with the cooperative marketing of processed fruits and vegetables, dry beans and eggs. This brought me in contact with people who were concerned with marketing the agricultural surpluses that were bound to develop following the War.

The anticipated problem brought about the passage of the Agricultural Marketing Research Act of 1946. As I recall Congressman Hope gave a talk at Ithaca, New York, concerning the bill he was sponsoring in Congress. I mention this to tell you I do have a little background of what took place in bringing about the Agricultural Marketing Research Act.

The frustration and concern of what to do with surpluses had more to do, I believe, with the passage of the Act than the actual demand for research. Research has to be specific. The individual research project covers a small segment of the whole. Farmers and politicians were interested in the whole and many had little conception of the time and problems involved to accomplish their objectives.

Farmers, I am sure, hoped research would perform miracles. That research would in some way prevent surpluses by increasing the industrial use of farm products, increase marketing efficiency and get people to eat more food and wear more clothes.

To me those responsible for carrying out the Act were asked to do the impossible in a short time. The surpluses did develop in spite of all we could do. It has taken a long time to get the research going. I think a fine job has been done in tackling the hundreds of specific projects dealing with the marketing of agricultural products. In the long run, only good can come from the work.

As a member of the Food Distribution Research and Marketing Advisory Committee of the Agricultural Research Service, I have had an opportunity to know more about the carrying out of the Act than most retailers. I confess to you that trying to appraise the work of the last ten years from the point of view of a food store representative is most difficult. The retailing of food is such a tremendous field. Sales of all food stores exceeds $40,000,000,000 a year. The seven basic farm products end up in at least 5,000 different foods that a consumer can buy. I doubt if any one person can accurately appraise the work. However, you have asked me to do the job and I will do the best I can.

Before making the appraisal of the research being carried on by the U. S. D. A. Marketing Research Service and the Experiment Stations located at the Land Grant Colleges in marketing, I want to make some general comparisons between the research of production, utilization and marketing of farm products.

Production Research

Production research has been going on for years. It is the research that produces two blades of grass where one grew before. It has let our industrial civilization grow by releasing people from the soil to produce industrial products and perform services making for good living. It is basic in giving us the highest standard of living ever attained. In this field, Government has done and must do most of the research -- individual farmers are not financed and equipped to do the job. Industry will do some, of course, on the production supplies they sell farmers, but basicly it is done by Government. As far as I can see, everyone is for Government doing this job.

Utilization Research

When it comes to utilization of farm products, industry has done most of the job. A tremendous amount of what we call industry research in processing new food products is luck or accident as it concerns the original development. Research improves and adds too. Concerns in food processing are always bringing out new products or variations of them. As I look about the grocery shelves in many super markets, I see few items that Government research has made any great contribution toward developing. I don't feel badly about this. I am of the school of thought that industry should spend money for developing new products and not Government. We have corporations with plenty of money to do the job plus the know how of putting the product on the market. This is just as important as developing the product.

However, Government does much basic research that commercial food processors can and do use. In our State, the cooperation between the Experiment Station and the processor, I believe, is excellent. It is one of those things where everyone wins.

Marketing Research

The place for conducting Marketing Research, I feel, falls somewhere in between Production Research and Utilization Research in respect to industry and government. If we look around, we find there are some very large chain store corporations, several hundred medium sized organizations and thousands of individual storekeepers retailing food. All of the large corporations and many of the small ones can and do a lot of marketing research on their own. On the other hand without benefit of research, the individual entrepreneur launched the self service super market. He just figured something out and went ahead. However, there are thousands of small storekeepers who do need help -- the same kind of help in store operations that an individual farmer needs with his production problems. So much for comparing the three fields of research.

Now let's look at present day marketing research from the viewpoint of a retailer. I am dividing the work into the following categories: commodities, facilities, management and personnel. Let's discuss each one of these separately.

Commodities

As I look about, I find that most of the government research has been with perishables, notably fruits, vegetables and eggs. Fresh fruits, vegetables and eggs account for only 15% of retail food store sales. The other 85% of sales is meat and processed foods where the commodity research has rested principally with industry. I don't believe government research will do much in the development of new food products. The only ones I hear of are on minor commodities, so to speak, like maple syrup, where the volume is so small that no big corporation has seen fit to invest money. Work done with fruits and vegetables has been helpful, like the packaging and washing of potatoes and the marketing of apples in 5 and 10 lb. bags. The sad part of this is that Fresh Produce seems to be fighting a losing battle. It continually loses ground to the processed. An example of this is fresh oranges being replaced by frozen concentrate. In total, Government has contributed little toward putting food into the form people actually buy it in.

Part of marketing is merchandising and to my knowledge, Agricultural Research has done little here. This is what makes one store successful compared with another store. Even with a large chain every once in awhile, it is surprising the lack of promotional touch they show. This is an area that is hard to research because it seems to be tied to intuition more than logic. I mention merchandising because it is part of marketing a commodity. In general, I believe Government should keep out of this as a research project.

Store Facilities and Equipment

It seems to me here is the one spot that government research has done a great deal of good. It has been demonstrated that the research is useful. In our own organization we have used Agricultural Research findings for the layout of self-service meat departments. We have used ideas for warehouse layout. We have noticed that manufacturers have applied ideas and techniques developed for check outs, etc.

As super markets become larger and larger and we have more and more items to merchandise, the challenges and the opportunities to make facility improvements will always exist. I expect the big chains will use their own research departments. The small operators will depend on equipment manufacturers and government. However, rest assured the large chains will keep their eyes open to any thing government comes up with. The small operator certainly can take advantage of the information that is and will be available if he knows how to get ahold of it. It will save him thousands of dollars and do a more efficient marketing job. Let's have more of it.

Management

At the Food Distribution Committee Meetings we have had discussion on feasibility of government getting into research and the teaching of business management procedures and financing methods. My personal feeling is that Government should have nothing to do with it. The general principles of business management for one business are about the same as they are for another

business. We have Schools of Business in our Universities; we have the American Management Association; we have the business management meetings of the National Association of Food Chains, the Super Market Institute and other trade organizations. These sources of information are open to all. These agencies are all doing a good job. If Government does it, it is simply duplicating what is already available. I have seen no evidence in any of the associations or educational institutions of depriving the small operator of the opportunity to know the principles of good business management and financing methods.

The big problem here is for a man to sense that he does need help. Maybe a good county agent in a few instances could stimulate an operator to want to learn. He could stimulate him to take extension courses in a university or a trade organization school.

Personnel

At our committee meetings, Personnel Research has been touched on. Personnel work is well covered by the same organizations that cover Management principles. There is no need of Government doing research on this subject. This does not say extension should not teach personnel.

Summary

This is about the way the ideas expressed sum up: Production Research is truly a function of Government. Utilization Research is largely a function of industry. Market Research is more of a joint function.

If we divide Market Research into functional areas, we have some going one way and some another.

Commodities -- Perishables should stay with government. Ideas for processed products are likely to stay with industry. However, some basic research on methods, etc., is with government and will be made useful by the joint use of government and industry.

Facilities -- Government is doing a fine job and should continue. Buildings and equipment for retail stores represent tremendous investments. The selection and layout of equipment makes all kinds of differences in store efficiency.

Management & Personnel -- A field there is no need of government getting into.

Opportunities for Extension -- Everyone benefits by learning how to do their job better. Government does have opportunities if it can be organized to dovetail with the industry programs of teaching in all of these fields.

In the field of Market Research, we can apply everything we know to the best of our ability and still not do business. The retailer has to have a touch that research doesn't provide -- it is the touch of being a good salesman and knowing how to attract people to his place of business.

We can have research, but it probably won't change considerably the per capita consumption of food. The most we can do is shift it from one product to another product, from one processor to another processor and from one retailer to another retailer.

The chances are as we do research, we will perform added and new services on the raw material. Result: the farmer will get less of the consumer's dollar. I would like to see more teaching with farmers showing the percentage of the consumer dollar going to the farmer makes but little difference. The farmer is actually interested in a high price sales unit so that he can make a dollar. He has little concern over the retail price as long as there is plenty of competition between the processors, the transporters and the retailers.

I hope you don't think I have been too rough. I hope I haven't been too lacking in imagination and at the same time have been practical.

MARKETING RESEARCH - HOW IT IS RESPONDING TO CONSUMER NEEDS

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Home Maker
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The first dilemma confronting a speaker assigned a talk with the word "consumer" in it, is whether to say the consumer himself or the consumer herself. Twenty years ago there would have been no question about it. Consumer meant "her", and the connotation was not always pleasant. In fact, business was scared to death of the consumer and "the consumer movement", whatever that was. I never could quite understand the emotional conflict between consumer and customer - but it's a good deal like the difference between mother-in-law and grandmother. The same person but - - - -.

In the depression days, when women walked blocks to take advantage of a few cents saving on an advertised product, there was considerable interest in the rights, prerogatives and place-in-the-sun of consumers. Indeed the amending of the Food and Drug Act twenty years ago was one of the results of the efforts of consumers working together. One of the few times, perhaps the only time, that there has been anything approaching a solid front on the part of consumers.

Since that time we have had tremendous changes in the ways food is produced, processed and sold, as well as unbelievable changes in our patterns of living.

How has research in the marketing of foods in this rapidly changing picture been translated into everyday practices and how have these practices met the needs of the contemporary consumer? What gains, losses and needs are implied?

No one can deny the improved quality and general availability of agricultural products throughout the year. Agricultural research has expanded the outlets of our farms and the abundance of our tables.

Perhaps the most dramatic of all changes in our food habits in this generation has been due to the use of frozen foods. A Displaced Persons family recently arrived in our community and was overcome by the variety and array of frozen foods that came pouring in as welcoming gifts from neighbors and sponsors. Said the grateful wife, "It seems everything in American is frozen except the hearts."

We take for granted the commonly used frozen juices and vegetables without much appreciation of the research that made their quality and availability possible. We are still somewhat bowled over to learn that there are over 1000 pre-cooked or "frozen food dishes" on today's market. One sometimes wonders if the processor hasn't over-estimated the consumer's desire for having all the joy of cooking dropped from the home scene. Perhaps the present interest

in cooking as an art, as evidenced by the current rash of gourmet cookbooks, food columns devoted to exotic dishes, patio cooking and Escoffier organizations, indicate a certain resistance to having food preparation become an institutional rather than a personal achievement.

All phases of food processing have profited by the fruits of research. The canning industry practices methods of handling and processing to improve not only quality but nutritive value. New developments in dehydration of foods are promising. Antibiotics and atomic radiation as a means of keeping food, while still in the experimental stage, are much in the limelight. The use of additives to bolster the nutritive quality of various foods is approved by the Food and Drug Administration. By the addition of iodine to salt, vitamin A to margarine, vitamin D to milk, and vitamins and minerals to cereals, the diets of many people have been improved.

The changes in pattern of family living in the United States are familiar to all of us. To name a few that affect consumption: before tax deductions the nation's 52 million families now have an average income of $5520 - a gain of $180 over 1954, $1760 more than in 1929; the number of families earning more than $5000 rose from 21 million in 1954 to 23 million last year (U.S. Department of Commerce June survey as quoted by A.P. 6/25/56). It bears pointing out that if 23 million families' income is over $5000 there are still 29 million families under that. Persons under ten years old make up 36% of the population - 25% in 1936; persons over 65 make up 8% of the population - 5% in 1929; 45% of married women in the 45-54 age group now hold jobs; 65 out of every 100 families live in urban areas; about 1/3 of all families are in the two person category; people marry younger - half the men marry before they are 23, the median age for women at first marriage is 20. (Metropolitan Life Insurance Study as reported in Pioneer Press 7/5/56).

The alert processor and distributor with an ear cocked to these trends of times have anticipated and created desires for goods before the inarticulate, unorganized, part-time consumers were aware of their needs. Someone has said "they have to read the consumer's mind before he has made it up". Working wives and busy mothers quickly accepted products with time and labor-saving built in; packages sized to family needs and available shelf space found an enthusiastic public; diabetics and calorie-counters welcomed special diet foods. Perhaps in the latter class, food sold solely on the basis of nutritive content will finally be found. About to come on the market from Rochester, Minnesota is a package of frozen foods containing two complete meals, guaranteed to provide 1000 calories in a well balanced assortment. Forty different menus will be provided.

Few of us consumers ever heard of the kind of research described in a recent magazine article by F. J. Van Bortel titled "Motivation Research and the Confusing Comsumer" (Journal of Home Economics January 1956). We are totally unaware of the fact that new products are launched on the basis of an understanding of our behavior - "the multiplicity of facts, fantasies, personal needs, moods, fears and frustrations that are all part of the final decision to buy one product rather than another". (What Helen Hokanson could have made of this!) I take some comfort in the thought that consumers are at least confusing, - .

And what about the market place itself? Of late years, a great deal of market research time and money have been given to price, cost, and efficiency analyses. Such research has been promoted in the interests of producers and distributors. The final test of its efficacy, however, is whether it provides better quality merchandise at a saving of both time and money to consumers.

The super market that we know today has become a kind of symbol of our American way of life. Having recently lived and kept house in a so-called "backward" country, and shopped at the picturesque, local markets, I appreciate more than ever these glamourous, air-conditioned, well organized institutions. I can understand the fascination they have for our foreign visitors, some of whom I am sure, wonder why or how these fabulous Americans can and do pay for such services and psuedo services.

Almost any day now I expect to step into a motor-propelled cart and ride around my favorite super market, luring my square eggs and irradiated oven-packaged foods with an electric eye.

This will cost money, and you-know-who the extra cost will be passed on to. But in this day of high employment and high incomes (50% more real purchasing power in the consumer's pocket book than in 1936) little attention seems to be paid to added cost. In fact, buyers are not encouraged to make price comparisons. I often find it very difficult to locate the fine print that reveals net weight, so that I can compare the price of this can to the other numerous brands of the same product consorting with it. Unless I can select on the basis of experience, I choose either from exhaustion or frustration or the impact of the most recent promotion campaign.

Furthermore, there is the book almost full of trading stamps and when it is I can put it with three more and get that lawn chair I want before the summer is over, and it will not have cost me a cent (or will it?). I am very glad to note that one of the U.S. Department of Agriculture advisory committees (Food Distribution and Marketing) recommends a study on costs and benefits of trading stamps in food distribution. I hope this study will be made promptly and the results widely circulated.

We read constantly about "impulse buying" and its desirable impact on sales. There is apparently no other side of the coin.

It is not only housewives but also husbands who upset the grocery cart. They fill it with assorted cheeses, snack foods and expensive cuts of meat that were "not on mommy's list" nor in her plans either budget or nutrition-wise. I gather from the number of men I see at market that doing the shopping is one of the more popular ways of relieving the little women of household drudgery.

Now impulse buying seems to be an out-moded phrase. According to a recent United Press story a package designer allows that the average wife comes home loaded with packages "because she was in a mild hypnotic trance induced by mass displays, lights, signs, slogans and brilliant colors" and, he adds, "this is one of the things that keeps America's complex economy boiling. Not only does

unplanned buying keep consumer demand strong and growing, but it also produces faster acceptance for new products" - such new products perhaps appear in this ad from the west coast.

Packaging as has been suggested has been up-dated. Today it is Big Business. Recently a two-page spread appeared in the Journal of Home Economics called "How Important is a Package"? This advertising piece outlined the research required before a cake mix satisfying the requirements of customer, grocer, and manufacturer reached the grocer's shelf. This company's cake mix is concealed in a package of clay-coated news board, lined with special laminated glassine paper that is glued to the outer box. The liner is highly plasticized, odorless, moisture proof and grease proof - all very well no doubt and necessary for this product. But if my sampling is any indication of widespread feeling, I sense a mild revolt of housewives to oven packaging. They feel that putting products endowed by nature with a satisfactory wrap into plastic covers conceals the condition and frequently impairs the keeping quality, to say nothing of adding to the cost.

According to a St. Paul package designer (that's his business with studio and research staff) "the surface has hardly been scratched in packaging. Packages will open easier, containers will be more useful, they will dispense the products more rapidly".

It is a bewildering, transformed, exciting world we live in and none of us would want to turn back. But sometimes we pause to wonder, what is progress? And who has the wisdom and courage to direct us? For example, I think there are many angles to consider in this matter of Sunday staying-open of stores; angles more important than added convenience and increased sales.

It seems that the prevailing philosophy of business and government is to keep the economy boiling by encouraging a steady increase in the gross national product. This keeps employment high and consumer spending and living standards up and going higher. Living longer and having larger families are contributing by providing more and more consumers. Harold F. Smiddy, a vice president of General Electric, predicts that in 1965 the U. S. population will be 190 million; the number of households 58 million; the gross national product 550 billion dollars.

Research programs of the U. S. Department of Agriculture and its cooperators, the state experiment stations, as well as those financed by industry, have all contributed to the current picture of food production and distribution. Better varieties; improved culture; modern methods of harvesting, transporting, and storing; technological changes in processing, packaging, and selling are all the results of research. Today we have an amazing variety of quality foods tailored to fit the needs of the contemporary consumer.

Any research that makes a more efficient marketing system is to the benefit of consumers, though it is designed and promoted in the interest of the producer and/or distributor. Thus the advantages to the consumer become a fortunate by-product. Although added costs of improvements are borne by the consumer, efficiencies in operation, volume of business and competition have

kept the prices of food down. To quote the Secretary of Agriculture (Mr. Benson to the National American Wholesale Grocers Association, March 3, 1956) "Thirty years ago the American people spent 25% of their income, after taxes, for food. If we were content with the diet of 30 years ago, we would need to spend less than 20%, after taxes, for food. We still spend one-fourth for food, but we are eating more and better."

This brings us again to the question of what marketing research is, specifically in the interest of the consumer. Perhaps it is over simplifying to say - information based on research that makes her a better buyer - that is information on which to base her choices so that she satisfies her particular needs.

It is a truism to observe that in this day and age, we are more and more dependent on highly specialized expert knowledge. Individual families cannot be expected to provide the research basic to the solution of their problems. Neither can they pay the fees of private research agencies. Furthermore, the job of research cannot be left to industry or other groups whose special interest may not be those of the larger group for whose benefit the research is desired. Only the Federal Government can provide certain types of research because of the nation-wide scope, the cost or special requirements for personnel or facilities.

There are 18 commodity and five functional advisory committees helping to shape the program of research and related activities developed under the Research and Marketing Act of 1946. As I read their proceedings, I see many indications that consumer interests are recognized in production, marketing and utilization research. There is a very understandable attitude common to the reports of the commodity committees - a burning desire for the consumers to use more of the group of products which are <u>their</u> special concern, especially if these products are part of the existing surpluses. Per capita food consumption has remained fairly steady for a long time. Competition is between products. The question is how to get the consumer to eat more of <u>my</u> product - which will obviously mean eating less of <u>yours</u> - since the amount eaten by human beings is at least limited by their capacity, if not by economics in these prosperous times. There must be a better solution than this robbing Peter to pay Paul suggests,--a solution based on the needs, nutritional and otherwise, of American families. One of my colleagues on the Vegetable Advisory Committee idealistically suggests that nutrition research should guide our entire agricultural food production.

How the concerns of producer, distributor, and consumer merge and overlap, is easily recalled by reviewing the categories into which marketing research generally falls: Market Development and Consumer Behavior and Preferences; Market Development Potential for New Products; Merchandising Methods; Marketing Margins and Costs; Marketing Information and Statistics; Retailing and Wholesaling; Product Packaging; Control of Insects in Marketing; Maintaining Product Quality; Evaluating Product Quality.

How are the results of research in these categories translated or are they possible of translation into information available and useful to the consumer in making choices that will give her the greatest satisfactions?

Expense, labor, manpower, and brain power in large amounts are expended in the effort to get food into market "in the pink". What about that very last step from market to table? What do we really know about what happens to food after it leaves the checker's counter? Weekly shopping is now quite the accepted practice. Many young homemakers "have the car" one day a week. It is no small task of a morning to load up the children, gather up the milk bottles, call in the dog, and take off for the weekly shopping expedition. Furthermore, there is the accumulation of errands - dry cleaner, post office, library, shoe shop, and coffee break. So it isn't difficult to imagine that frequently the well loaded back seat stays loaded until after the children have been fed and put to bed. The small kitchen in the tract house has inadequate storage facilities. The young mother with hands full may not be a very good organizer, and doesn't know about cooking vegetables to conserve vitamins and minerals. Perhaps the friendly coffee break at a friend's is more inportant than the safe arrival of the week's groceries, who knows?

And what about the nutritional values of those groceries she lugs in after she has put the children down and eaten her unbalanced lunch. With an abundance of good foods available and the where-with-all to purchase them, with public education and mass communication as we know it today (40 million TV sets in the country and 2 radios per family) it might seem that every family's fare would be nutritionally sound. But over-weight is said to be the national health hazard. The effect of diet on health and disease is of increasing concern.

A few Sundays ago one of the front page headlines of our local paper read "Are the Fats and Oily Foods we Love Killing Us"?

Government investigators have found by surveys in a few areas that people eat more meat, poultry, eggs, dairy products, fruits, and vegetables than they used to. We are sure that the nutritional status of people in the United States is now on a higher level than ever before, even though many individuals do not eat as they should.

We all point with pride to the job modern mothers do in feeding their infants, how carefully and conscientiously they follow their pediatricians and Dr. Spock (50 pounds of baby food are processed annually for every child under three years of age). Grand parents have just cause to crow about the health and superior behavior of their grandchildren. But what about the mothers themselves.

Right here in Iowa a number of studies have shown that homemakers' diets leave much to be desired. Dr. Swanson points out that their diets do not produce deficiency diseases; neither do they produce buoyant health. "Many Iowa homemakers feel dragged out and old beyond their years partly because they don't eat the foods that build vigorous health". Of 339 women interviewed in South Dakota, 8% of their dietaries rated superior, 8% rated poor. What is the answer?

In general we shy away from telling people what they ought to do. Economists consider this in the field of "value judgments". This belongs in the sphere of ethics. Referring again to the article on motivation research, Mr. Van Bortel brings out the fact that the manufacturer cannot "take the risk of trying to work toward giving the consumer what he should want or even what he says he wants. Nor can producers for a mass market produce for the individual no matter how desirable the envisioned product . . . he deals with a mass market and he has learned to give consumers what they really want - what they will buy."

Is this the best answer we can give to what the consumer wants? Recently a New York department store sent out a questionnaire asking for the "pet peeves" of their customers. Fifteen hundred women shoppers replied and their replies were on the sensible and practical side. The question is "Will the manufacturers and stores that make and sell women's clothing, heed them?" (Midland Cooperator, July 9, 1956).

More of the kind of careful, long-time, significant research on consumer practices that Dr. Quackenbush and his associates at Michigan State University are conducting is indicated. The Department of Agricultural Economics has maintained since 1953 a continuous marketing consumer panel within an urban Michigan community of about 125,000 population. For this panel, families provide periodic social and economic descriptions of their households. They also furnish weekly records of quantities and costs of all food brought into the home for family uses, and of the number of meals eaten at home by individual family members and their guests. These data are recorded and analyzed by IBM methods.

The consumer, in spite of the research ostensibly in her behalf, continues to baffle the trade. Even though confusing perhaps she is not confused but only frustrated because there is no opportunity for producer, distributor, and consumer to communicate.

In the provacative chapter which Dr. Nelson N. Foote contributes to Consumer Behavior (New York University Press 1955), he prophesies that "the power of the consumer to express his wants in his own way will increasingly become a means of restoring communication between himself and the producer. This implies that all who play a part in the function of distribution must see themselves not merely as merchants but as channels of communication, of criticism and appreciation, of teaching and demonstration."

This strikes an optimistic note as does also another of Dr. Foote's comments - "I think that research can do something with the problem of engendering creativity in consumption as it has with creativity in production."

I also found it refreshing and encouraging to come upon Dr. Geoffrey Shepherd's philosophy ("What Can a Research Man say About Values" - Journal of Farm Economics, February, 1956). I like his example of the farmer's wife who loves to eat, - "Do nutritionists then say, 'that is her value system, and science can say nothing about it?' They do not - they bombard her with nutrition-

al and health education about the consequences of obesity in a strong effort to get her to change her values. The wife who loves to eat, who values eating highly, learns to value eating less highly."

Dr. Shepherd also provides me in his concluding sentence with a closing quote:

"One of the legitimate purposes of research and education is to show the consequences of alternative value judgments, as well as of means, and thus help people to change their values in directions that will enable them more fully to satisfy their wants."

TEN YEARS OF STEPPED UP MARKETING RESEARCH

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The theme of this workshop, "Agricultural Marketing Research and Its Use-Appraisal and Prospect," brings to mind a quotation from T. E. Lawrence, "There could be no honor in a sure success, but much could be wrested from a sure defeat."

It was just 10 years ago that Congress passed the Research and Marketing Act, which gave new emphasis to both research and extension work in agricultural marketing. As we recount these 10 years, we can sense both success and defeat in our efforts to meet boldly the marketing challenge before us. It is well, therefore, to take stock of our position 10 years later, measured against our hopes and aspirations of a decade ago.

Many of us, at the close of World War II, were apprehensive of economic trends that would be harmful to agriculture. The very fact that the Agricultural Marketing Act was passed in 1946 could be interpreted as evidence of this apprehension. Many proponents of marketing research at that time recognized the adverse circumstances under which it would be undertaken. Many of us foresaw the unlikely prospect that marketing research would reverse or seriously modify impending trends toward higher marketing costs, wider marketing margins and growing agricultural surpluses. At the first marketing workshop in 1949, O. V. Wells was prophetic when he voiced the opinion that people entertaining thoughts of reducing marketing costs would be disappointed, "first, because marketing costs are compounded more than anything else of labor costs and I have no reason to believe that wages are going to go down in the near future, or for that matter, within my life time; second, because many marketing costs are involved in supplying services to satisfy the American housewife's wants and my guess is that the ordinary American consumer or housewife is going to want at least as many and probably more services in the future as in the past; third, because when they start to reform a marketing system, they will find that we live in a well established organized economy where there are many vested interests that will be able to impede or successfully slow down movements to make the marketing system decidedly more efficient or less costly as those terms are ordinarily employed."

The trends that have been evident during the past 10 years have borne out those views. Between 1947-49 and 1955 average hourly earnings of food marketing workers advanced 43 percent. New marketing services not in existence prior to 1940 accounted for at least 6 billion dollars of the food marketing bill in 1955. And aggregate farm output has increased more than 18 percent since 1947. Such changes have been reflected in a 15-billion-dollar higher food marketing bill since 1947. The farmer's share of the consumer's dollar has fallen from a peak of 53 percent in 1946 to less than 40 percent today. And Commodity Credit Corporation inventories that were valued at $521 million in

1946 were valued at $6 billion at the end of 1955, with commodities under loan adding another $2½ billion.

Such data as these might readily lead to a conclusion that agricultural marketing research conducted during the past 10 years has failed dismally. Before accepting such a conclusion, however, it is only judicious to examine the circumstances under which the trends occurred and then to ascertain "what has been wrested from the sure defeat." Clearly the dominant trends are traceable to outside factors that probably could not have been altered by marketing research, however large the scale of such research. Accordingly, the best that might have been expected of research was to help industry adjust to the changes, and thereby ameliorate the difficulties induced by them.

Any evaluation of marketing research conducted under the Agricultural Marketing Act should take cognizance of the handicaps it has confronted since the first appropriation of $2 million was passed in August 1947 to be spent for new marketing research during the then current fiscal year. The assignment was to get the program under way within less than 11 months. The $2 million for Title II of the Act that year was in addition to $7 million of increases in appropriations for agricultural research made available simultaneously for other parts of the Research and Marketing Act. No less than $1/2 million of those funds were expected to be matched by States for marketing research conducted in experiment stations.

The rapid initiation of such a program was a sizeable assignment, even under the most favorable circumstances. The problem was aggravated, however, by the expectation that this was only the first of at least five annual increments of still greater size, and also by pressure for immediate results believed to be needed to maintain support for the successive increments. The situation reminded one of the Board of Directors who hired a head for a new research department for their company one morning. On the way out to lunch that noon one of the directors said, "Let's stop by the research department and see what that chap has come up with by now."

Staffing a new program of these proportions presented a most difficult assignment. Only a small base of personnel qualified for marketing research had ever been available in the agricultural research programs of Federal and State agencies. Moreover, the small base had been seriously depleted to fulfill staff requirements of war and post-war action programs. The training of young men had been practically stopped during the preceding six years to supply military manpower requirements. One of the most feasible alternatives under the circumstances was to recruit trained scientists experienced in other areas of agricultural research to devote their efforts to the solution of marketing problems. Another was to seek personnel trained in research outside the Land-Grant College system, the traditional source of most agricultural research manpower. Both of these alternatives called for strong marketing research supervision and leadership.

Perhaps a greater staffing difficulty was one of diverting the attention, interest, and enthusiasm of the agricultural research leadership to marketing problems with which they were relatively unfamiliar. This leadership was

drawn in the main from production research and from Land-Grant College training that had emphasized other phases of agricultural research. The less tangible, more controversial and poorly developed area of marketing research involved subject matter, techniques, and clientele that were hard for this leadership to grasp and cultivate. In many instances the inclination was to reframe the justification for doing much the same research as before on the basis of marketing objectives, assumed or fancied, rather than to tackle new and different problems in an unfamiliar field. In other words, it was easier to divert marketing money to essentially production problems than to shift supervision and research manpower to marketing problems.

Even today, 10 years after enactment of the Agricultural Marketing Act, serious questions might be raised as to: whether agricultural research leaders fully comprehend or sympathize with their assignment; whether they understand marketing problems and the types of research required to deal with them; and whether they are training, recruiting, and organizing for research that can be expected to solve the significant marketing problems.

Answers to such questions, of course, involve value judgments and do not lend themselves to clear-cut demonstrable conclusions. Decisions regarding uses of funds with which we do not agree may be attributable to either a misinterpretation of what is marketing and therefore what is relevant marketing research, or to the exercise of prudent judgment of what is judicious expenditure of available agricultural research funds in which we don't happen to concur. Nevertheless, differences of view of this nature may be appropriately examined by a group such as this in the hope that a better reconciliation of opinions may be reached.

Not the least handicap for marketing research in the past 10 years, as well as in years ahead, are claims or predictions made for it by some of its most ardent advocates. I place this handicap above that of opponents of marketing research. Actually there has been relatively little outright general opposition. There has been opposition to particular projects and to particular types of research. It has been most apparent in the areas of costs and margins analyses and of research seeking to devise more efficient marketing methods. Here the research bears upon competitive relationships and is bound to incur controversy. Nevertheless, Congress has clearly indicated its interest in having these phases of marketing research developed, and has recently earmarked appropriations to insure that Federal agencies, particularly, will proceed with it despite opposition.

Marketing research has not enjoyed either the advantages or suffered the disadvantages of crusading advocates of the type of Harvey Wiley, Louis Pasteur or Billy Mitchell. Yet proponents have strongly suggested from time-to-time that it did offer solutions to problems of agricultural surpluses and declining farm prices. I believe it is safe to say, however, that no responsible leader of publicly conducted marketing research has ever contended that such research would be a cure-all for farm price and income problems arising out of post-war maladjustments or resulting from unsound governmental interference with price and distribution systems.

This disclaimer should not be construed as a lack of confidence in marketing research. It is simply indicative of the fact that low pressure salesmanship rather than high pressure promotion has characterized the development of this research in the past decade. One might observe that this has been prudent in the light of the trends of the past 10 years and in prospect for the future.

After full consideration is given to all handicaps, we still have an obligation to account for sizeable sums of public funds spent for marketing research during the past 10 years. The records indicate that no less than 75 million dollars of State and Federal funds have been appropriated for the work since the first appropriation of $2 billion in 1947. That is a lot of money, even in this day and age!

It is hardly sufficient accounting to divert attention to the fact that these appropriations have been small compared with expenditures for farm price support, for foreign aid or for military defense. True, this sum represents in the aggregate less than 2 percent of recent annual expenditures for farm price support, and hardly more than 1 percent of recent annual appropriations for foreign aid. It approximates the estimated subsidy on one modern ocean liner and is less than the cost of a single naval aircraft carrier. It is true, too, that it represents less than one-third of the amounts authorized for this marketing work in the orginial legislation. It is also true that even with these increased appropriations, marketing research constitutes only about 12 percent of our agricultural research program. But these aren't the parts of the record that can be used for judging relative worth and appraising accomplishment.

Let me cite a few statistics that may be more to the point.

While hourly earnings for labor engaged in food marketing have risen 43 percent, the labor cost per unit of produce handled has risen only 26 percent. The difference represents an advance in productivity of labor employed in agricultural marketing. This was made possible at least partly through marketing research. This is a significant advance, to be sure, but it also suggests that more could and should be done. Wage rate patterns tend to be set in those industries where labor productivity increases are greatest, such as steel and automotive manufacture. Research is needed to help agricultural marketing increase its labor productivity much more so that it can compete successfully in the labor market. Inasmuch as labor is by far the greatest cost element in agricultural marketing, there is a vast opportunity for further productive work in this area.

For many years economists have believed that the percentage of income spent for food declines as incomes rise. This was believed to be axiomatic. During the past 10 years this has not been true. Disposable personal income in the United States has risen over $100 billion, or some 70 percent, since 1946 and over $190 billion, or some 250 percent, since 1940; yet over this span of years the percentage of income spent for food has gone up from about 22 percent in 1940 to 25 percent. Moreover, the higher rate of expenditure has been well maintained in recent years. This represents a highly significant change that has probably contributed greatly to the fact that agriculture

has not suffered a post-war price decline comparable with that which occurred in 1921. It means that U. S. consumers are buying more and higher quality foods and are willing to pay for the many additional marketing services that are now being provided. It suggests that agriculture is doing well in competition for the consumer's dollar despite the myriad of new and attractive industrial products appearing on the market. Research in merchandising, and in consumer preferences helped to make this possible.

A somewhat similar accomplishment can be cited for cotton in the women's dress market. In spite of the appearance of new "wonder" fibers on the market, cotton has more than held its own with respect to women's preferences and purchases of dresses. Research growing out of this program designed to help cotton processors and distributors supply the ladies' wants has doubtless had a significant beneficial effect in this highly competitive field.

These two developments in food and fiber suggest that agriculture is not necessarily destined to a losing battle in the competition for the consumer's dollar in an ever rising standard of living. They suggest that effective marketing research can break new frontiers that will redound to the benefit of farmers. The cotton industry has evidently been convinced for some time that market development research pays off, expensive though it is. I note now that the dairy, livestock, poultry, wheat, rice, wool, and a number of other industries are taking a page from the cotton book. They are all looking for more research to support their market development activities.

Even though the upward trends in agricultural marketing costs have been so pronounced in recent years, cases can be cited where actual reductions in costs and charges have occurred. For example, most of the cotton compresses and warehouses in the Mississippi Valley have reduced their charges for receiving, storing, compressing, and shipping bales of cotton by more than 25 percent since 1953. This, as well as other similar reductions for particular market services for particular commodities, can be attributed to improved methods based upon marketing research of the past 10 years.

Without doubt, marketing research has helped the marketing system retain higher quality in our farm products until they reach the consumer. It has also supplied business men with a vast amount of information and statistics useful to them in making intelligent business decisions. And, it has helped regulatory and service agencies improve their functions from the standpoint of minimizing costs and improving the quality of their serivces. These and many more accomplishments unfortunately do not lend themselves to quantitative estimates of benefits, but they are nevertheless real.

Questions that merit serious consideration in this workshop have to do with what kinds of research and how much will it take to obtain full advantage of the potentialities for marketing research. I assume that at least partial answers may be forthcoming from this group.

Without presuming to know these answers I would like to make a few personal observations in closing. There may have been more conservatism over the past 10 years than was warranted in developing the marketing research

program. New methods, new approaches and new facilities have not appeared as fast as might have been expected. Training of young men for this new area has not been stepped up in a manner commensurate with its prospects.

Requests for financial support have been modest. I recognize that long-run progress could be damaged by promising too much and asking for more than could be effectively assimilated in a sound program. On the other hand, I feel more could have been done and more could prudently be spent on marketing research. The structural base has been soundly established. In only one year -- the first -- was there reason to feel we were going too fast to prepare solid footings. In subsequent years this was more than offset by slower-than-warranted progress.

The actual reduction of marketing research appropriations that occurred during the Korean conflict was a serious set-back. Repetition of this should be guarded against with even greater vigor than the quest for additional funds. This type of interruption had enduring effects as it discouraged the training of adequately prepared men and seriously disrupted several phases of the research that were sorely needed during the past several years.

Many marketing research leaders still do not face squarely up to the need for expanded research in public policy and programs. There are many issues involving agricultural marketing and prices which should be tackled by marketing research workers. With the Federal Government owning an unprecedented hoard of food and fiber, it is inevitable that proposals repeatedly arise involving a variety of schemes for food and fiber distribution, storage, pricing, and the like.

Qualified research workers in the States should constantly be studying such proposals. It is necessary that such analyses be strictly objective. While it is recognized that state workers may not be as close to some of these proposals as is true of Federal research workers, it is, on the other hand, true that state workers are further removed from congressional pressures and from the quasi-political atmosphere in which Washington decisions on such questions must be made.

We need to anticipate questions of this character, and then to have prepared a complete analysis of alternatives and consequences in such a way as to facilitate comparative analysis at the time marketing and pricing policies are being formulated.

While I have addressed these remarks primarily to marketing research, I must add a word about the necessity for an ever expanding and pioneering program of marketing extension work among both producer and marketing groups. In many instances we have not effectively integrated our research and extension programs. We need close communication both ways between these groups of workers. In many cases we are still groping for effecting ways of carrying research recommendations to those who will eventually benefit.

Research is valuable only is it is used. The research worker himself must accept responsibility to see that his fellow worker in extension is

fully informed. Likewise, he needs the guidance of his extension co-worker to make sure that his efforts are directed into high priority channels.

Farm marketing problems of substantial importance promise to be with us for a long time to come. They will require the best research efforts we can muster. I am confident that we may become better prepared to help private industry cope with them in the future than we have in the past.

How Farm People Accept New Ideas

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Some farmers will try any new idea that comes along, while others will accept an idea only after it is proven in their neighborhood. A major concern of agricultural leaders is that of narrowing the time gap between the early and late adoptions of recommended practices. Some new ideas and practices are accepted quickly and with little apparent effort, while others are accepted only after years of effort on the part of agencies and leaders working with rural people.

This lag between *what is known* and *what is done* by most farmers has been the focus of considerable research in recent years by rural sociologists and others. Some aspects of the problem have been more adequately studied than others. Many of the studies are exploratory, resulting in only tentative findings. Despite the many gaps in our present knowledge, there is a need for bringing together and interpreting the results of the various studies for use by agricultural leaders and agencies.

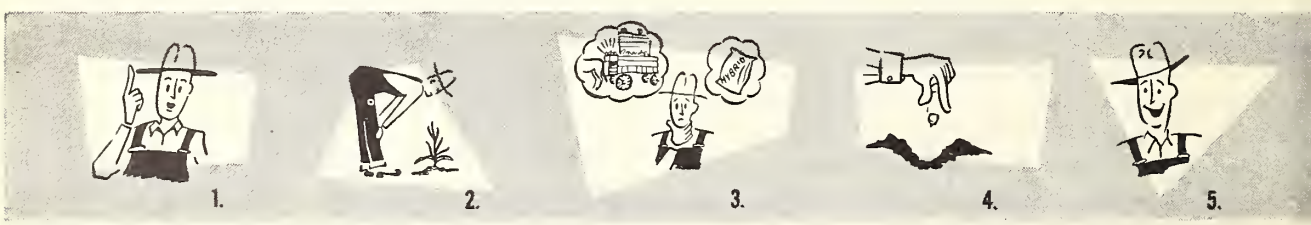
The major purpose of this publication is to show the process by which ideas become accepted. This diffusion process will be discussed from three points of view:

1. The stages through which an individual goes from the time he first learns of an idea until he adopts it, and the media which are most effective at these various stages.
2. Some situational and group influences affecting adoption.
3. Some of the characteristics of farm people as they relate to rate of adoption.

Stages in the Process of Acceptance

The acceptance of a new idea is a complex process involving a sequence of thoughts and actions. Usually decisions are made after multiple contacts with various communication channels. These contacts are made over a period of time. For instance, the average time span from awareness to adoption of hybrid seed corn in Iowa was 7 years. Adoption of most other hybrid seeds has come more rapidly. Changes which involve new skills or techniques usually require longer periods of time. However, once an idea has been introduced and the process initiated in any given community, some people can be found at all stages in the process of acceptance. This process may be broken down into five stages as follows:

1. **AWARENESS:** At this stage the individual learns of the existence of the idea or practice but has little knowledge about it.
2. **INTEREST:** At this stage the individual develops interest in the idea. He seeks more information about it and considers its general merits.
3. **EVALUATION:** At this stage the individual makes mental application of the idea and weighs its merits for his own situation. He



obtains more information about the idea and decides whether or not to try it.

4. **TRIAL:** At this stage the individual actually applies the idea or practice—usually on a small scale. He is interested in how to apply the practice; in amounts, time and conditions for application.
5. **ADOPTION:** This is the stage of acceptance leading to continued use.

An integral part of the acceptance process is the communication of information at these various stages. Information is communicated through various channels which may be generally classified as follows:

1. Mass communications media (newspapers, magazines, radio, TV and circular letters)
2. Neighbors and friends
3. Salesmen and commercial dealers
4. Direct contacts with agricultural agencies (professional workers in Extension, Soil Conservation Service, Agricultural Conservation Program and Vocational Agriculture)

THE DIFFUSION PROCESS

In the Awareness Stage

At this stage the individual knows little about the new idea beyond the fact that it exists.

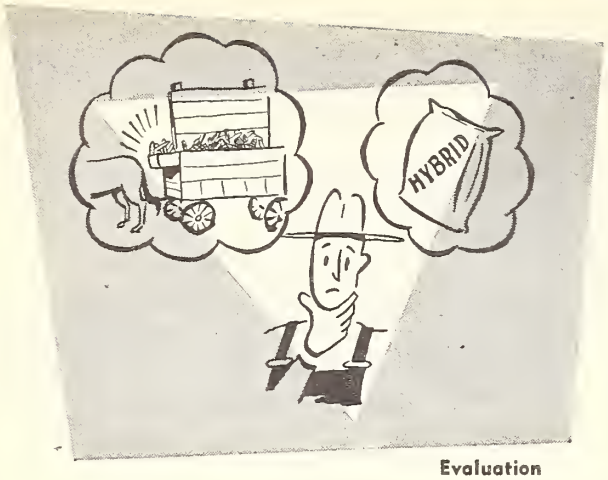
More people become aware of new ideas from mass communications media than from other sources. This is supported by studies in different parts of the country. Some studies, such as that of hybrid corn in Iowa, indicate that salesmen are important in creating awareness of new ideas which involve the use of a commercial product. Neighbors and friends are important creators of awareness of new ideas among the lower socio-economic groups.

Some studies reveal that government agencies such as the Extension Service and other agencies are the second most important contact for informing people of the existence of an idea.

It is at the AWARENESS stage that the mass media devices have their greatest impact. The evidence is that for the majority, mass media become less important as sources of information after the individual has become aware of the idea.

In the Interest Stage

At this stage, the individual obtains general information about the idea. Mass media still play an important role in providing this type of information. They provide information which is timely and readily available from a wide range of sources. Many rely upon agricultural agencies at this stage while others rely upon neighbors and friends. Agencies can provide results of experiment station research. Farmers with outside contacts are also important in stimulating interest in new ideas and practices. The channels of communication which can provide general information which rural people will accept as valid are the most influential at this stage.



Evaluation

In the Evaluation Stage

In this stage the potential adopter evaluates the new idea in terms of his own situation. He weighs its economic aspects in terms of land, labor, capital and net returns. He also appraises it in relation to values other than economic—i.e., his personal preference in enterprises and activities, family resources, family goals and interests, and its effect upon his relationships with his neighbors and friends.

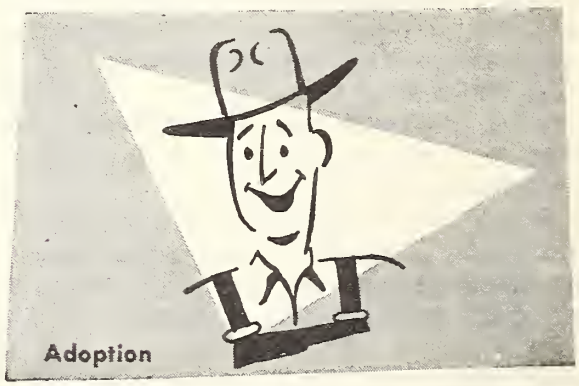
The data available indicate that as people are evaluating an idea for their own use, they usually consult with neighbors and friends whose opinions they respect.

The earlier adopters tend to depend upon agricultural agencies during this stage. Farm people, in general, go to sources of information which they consider to be dependable for information at this stage. This usually means that the sources are ones with which the farmer has personal contact, i.e. his neighbors and friends. These sources have demonstrated ability to consider new ideas in terms of the local situation. The reasons for the apparent lack of importance of mass media and salesmen at this and later stages of the adoption process are: (a) The information provided through these channels is too general; (b) the potential adopters mistrust some mass media information because they feel that the information is tempered by the business interests of those who are in control of them.


Trial

In the Trial Stage

This is the stage where farm people preparing to try out the new idea are primarily concerned with getting information on how to do it and when to do it. Where possible, the new idea or technique is tried on a small scale, i.e., one bushel of hybrid seed corn was planted the first year; commercial fertilizers were used on small plots, etc. At this stage agricultural agencies become more important along with neighbors and friends, who continue to be important sources of information. Two-way information is usually needed to obtain the detailed information on *how* and *when* the new technique is to be applied. Some techniques require technical "know-how" which the average individual does not have.


Adoption

Salesmen are important providers of information at this stage when a commercial product is involved.

Mass media have been relatively unimportant as information sources at this stage.

In the Adoption Stage

This is the stage at which the idea has been completely accepted. The individual is satisfied with its use under existing conditions. The greatest single influence in continued use of any idea is the individual's personal satisfaction with early trials. Continued use also de-

pends upon the individual's success with the practice under varying conditions.

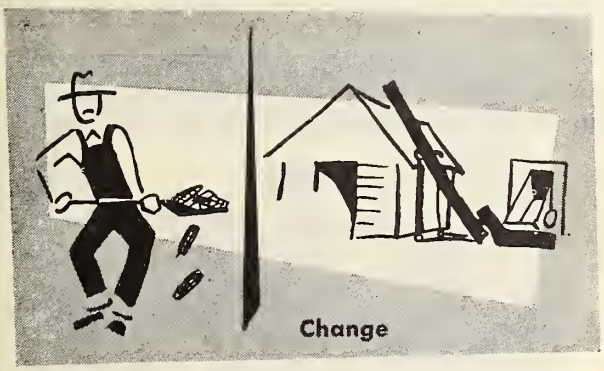
There is some evidence to indicate that adopters seek information to interpret results in relation to their own situation. This is most likely to be provided by neighbors and friends and agricultural agencies.

An understanding of failures of new practices is as important as interpretation of successes. For example, hybrid seed corn use is sometimes discontinued because individuals have used strains unadapted to their climate and soil conditions and have had results that were unsatisfactory.

Diffusion Process Varies With Types of Change

There is a wide variation in the types of changes in farming. They are of a qualitative as well as a quantitative nature. An example of a qualitative change would be a change from non-use to the use of commercial fertilizer. An example of a quantitative change would be the variation in the amounts of fertilizer applied. For some changes, however, the distinction between a quantitative and a qualitative change is not always clear—i.e., a change from low analysis to high analysis fertilizer.

The content of changes includes: (a) the change in the amount of human effort required, (b) the change in amount of capital or physical materials required, (c) the change in manipulative skills and (d) the change in management



ability required for maximum benefits from the new idea. Taking these elements into consideration, changes in farm practices may be classified as follows:

1. Change in materials or equipment only, without a change in techniques or operations (e.g., new variety of seed).
2. Change in existing operations with or without a change in materials or equipment (e.g., change in rotation of crops).
3. Change involving new techniques or operations (e.g., contour cropping).
4. Change in total enterprise (e.g., from crop to livestock farming).

Such a classification of changes is helpful in determining the role of various communicating agents in implementing change. For example, the one-way communication of the mass media may be sufficient to initiate a change in a seed variety, while a combination of media including two-way personal communication may be necessary to implement a change from straight-row to contour farming.

The relative advantage of the new as compared with the old way of doing things is another condition affecting its acceptance. In economic terms this is the comparison of output per unit of input—the relative efficiency of the new items. The greater the efficiency of the new technology in producing returns, not only in the form of economic goods but also in other forms of satisfaction, the greater its rate of acceptance.

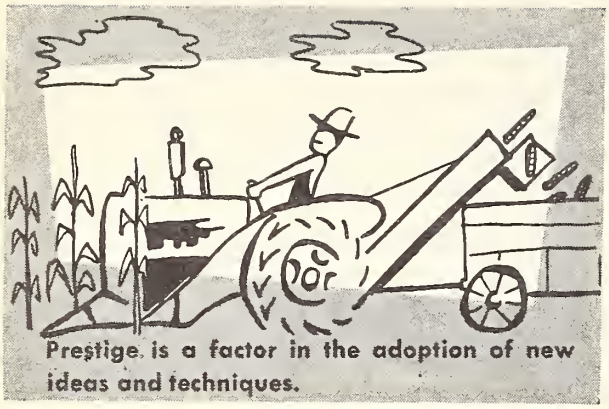
Another aspect of new practices affecting their rate of acceptance is the relative ease with which they can be demonstrated and communicated. For example, the ease with which an advantage of hybrid corn over open-pollinated varieties can be demonstrated no doubt has influenced its rapid acceptance. On the other hand, the difficulty of demonstrating the advantage of strip-cropping or new crop rotations has made for slower acceptance of these practices.

Some Personal and Social Characteristics Related to Adoption of Practices

The adoption of farm practices is influenced by social and psychological as well as economic factors. Community standards and social relationships provide the general framework wherein the process of change occurs. Individual differences help to explain variations in adoption of practices within the community.

Group and Community Variations

In some groups and communities people place a higher value upon material gains and money



Prestige is a factor in the adoption of new ideas and techniques.

than they do in others. In some, changes in farming are encouraged and expected. Prestige is attached to the adoption of new ideas and techniques. In others, more value is placed upon tradition and little freedom is allowed the individual to deviate from the group's pattern in adopting innovations.

If the adoption of new practices goes contrary to the established customs and traditions of the people, the innovator may be ridiculed or lose prestige.

The extent to which changes are adopted depends upon the values and expectations of the group and upon the extent to which the individual is expected to conform. Where there is great emphasis on maintaining family traditions and values rooted in the past, change occurs more slowly. On the other hand, where emphasis is upon individualism and personal success, change occurs more rapidly.

The acceptance of change is also influenced by the nature of leadership and control in the group or community. In one community, none would agree to go along with a program to eradicate brucellosis in dairy herds until one man in the community was sold on the idea. Once sold, he influenced all farmers in the community to go along with it. In this situation, change was brought about by working through the leader of the group. In most communities, no single leader has such influence. Whenever there are leaders that the people look to, it is important to identify and use them. The influence of informal leaders is likely to be greater where neighbor, community and kinship ties are the strongest.

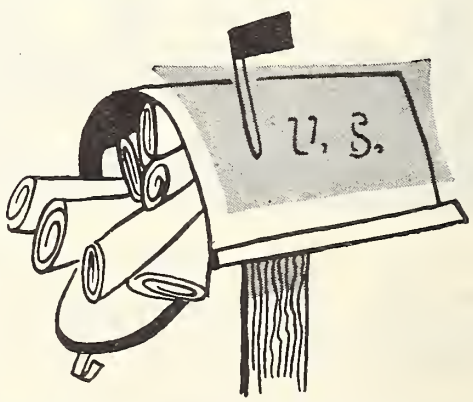
The extent and nature of social contact within the community is important in the diffusion of new ideas and techniques. The presence of organizations whose objectives include the promotion of changes will aid directly and indirectly in the diffusion process. On the other hand, where social contacts are primarily through kinship, visiting and other informal activities, there may be greater resistance to change. The introduction of change may disrupt these relationships. For example, the use of modern machinery makes the work-exchange group less essential. Hence, the nature of the social contacts in a community is an important factor in the process of change.

The degree to which social contacts are confined to the immediate locality is a factor. The broader one's social orientation, the more likely he is to accept new ideas. Only a few individuals may have such outside contacts, but they may be in a position to influence their neighbors. Local orientation on the part of the majority is not necessarily a limiting factor in the diffusion of new ideas so long as a few leaders have outside contacts.

Neighborhoods and clique groups facilitate exchange of farm information among their members. There is evidence that social cliques serve as barriers to the spread of information outside themselves. Members of neighborhoods and cliques rely more upon other members for information and advice in the adoption of farm practices than they do upon outsiders. This is due to the high degree of identification that prevails among intimate associates.

If information is from persons who are already well informed on the new practices, changes will take place more rapidly than if information is sought from friends regardless of how well informed they may be.

The social distances associated with wide status differences are also a factor in the diffusion of farm information through inter-



Ideas through bulletins, farm magazines and newspapers

personal channels. For example, tenant farmers in some areas of the country do not get ideas from the large farm owners because of their lack of contact. Also small-scale farmers may fail to communicate with large-scale farmers. Rigid class structure impairs interclass communication of ideas.

Individual and Family Variations

Decision making is influenced by the aspirations and capabilities of farm families. Individual member and family aspirations are reflected in their goals, values and means of achievement. Their capabilities include general farm knowledge and managerial skills of the operator and his family. These are related to such things as age, formal education, socio-economic status and social contacts.

The more education an individual has, the more likely he is to adopt new farm practices. Those with high school training, and above, tend to adopt new practices earlier than those who have had less formal schooling.

Young operators tend to be more aware of and more favorable toward new ideas and practices, but are not always in a position to put their ideas into operation. This may be due to lack of available capital or land or lack of freedom to make decisions.

Participation in general farm organizations and farmer cooperatives is associated with early adoption of new farm practices. Favorable attitudes of farm families toward extension and other educational agencies is positively related to acceptance of farm practices.

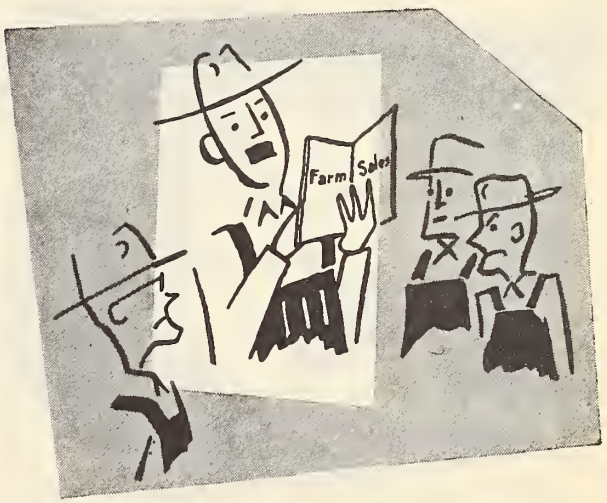
Farmers who have children in 4-H clubs or vocational agriculture tend to adopt more approved practices than others. Participation in the adult extension programs is positively related to adoption of practices. Likewise, the number of contacts which individuals have with new ideas through bulletins, farm magazines and newspapers is positively related to early adoption of practices.

Individual and family goals and values affect the decisions to adopt or reject new farm practices by providing motivation for individual and family action. For example, the high value placed on security, as reflected in owning land debt-free and being reluctant to use borrowed capital, is negatively related to adoption of new practices. People who rate this value highly prefer to use money for paying off debt on their farms. Also new practices involve risks which people who place a high value on security are reluctant to take.

High values upon individual achievements and satisfactions are positively associated with adoption of new ideas and practices. These achievements and satisfactions include formal education for family members, modern living conveniences and family recreation.

Attitudes pertaining to the participation of family members in decision making and in the operation of the farm are associated with acceptance of changes in farming. For example, farmers who have sons over 12 years of age who encourage the adoption of new practices are among the earlier adopters. Those farm families having equitable arrangements for

Innovator



Community Adoption Leader

sharing farm income and ownership between father and sons tend to be earlier adopters than families in which the father retains control of the farm.

Sequence of Influences in the Adoption of Practices

From the time a new idea is formed until it is generally accepted, multiple influences are at work. These include the various means of communicating ideas which have been discussed earlier in this report.

The relative importance of these means varies with stages in the process of acceptance discussed above. Also earlier and later adopters rely upon different channels of communication particularly at the evaluation and trial stages.

As shown on page 10, people may be classified into categories according to the sequence in which they adopt new practices: innovators, community adoption leaders, local adoption leaders, later adopters and nonadopters.

Innovators are the first to adopt new ideas. They are independent in their thinking and have a wider range of contacts. They are known as "experimenters" and "people who are always trying out new things." They are seldom named as persons to go to for advice on farming. They are not necessarily adoption leaders in their neighborhoods and communities. Such persons may not be present in every community.

Community adoption leaders are not the very first to try new ideas, but are among the first to use approved practices in their community areas. They are not the persons who test the untried ideas but they are quickest to use tried ideas in their own situation.

The community adoption leaders are usually the larger and more commercial farmers in their areas. They have direct contacts with agricultural agencies and may be the leaders in farm organizations. They tend to have a higher level of education and read more bulletins, magazines and newspapers than do the average. They participate more than the majority in formal organizations and have wider social contacts.

Local adoption leaders. These are the people to whom the majority look for information and ideas in their farming operations. They are not necessarily innovators or early adopters, but they do adopt ideas sooner than the majority who look to them for information. They have information contacts with agricultural agencies and other farmers outside their immediate localities who have tried the ideas. In their personal and social characteristics they are similar to the majority, but they are expected to take the initiative within their groups. They are sometimes called informal leaders. Their leadership position is maintained on the basis of being "sound" and showing ability to use good judgment. One remains an informal leader only so long as he is considered by others to possess these attributes.

These local adoption leaders or informal leaders are important links in the chain of communication. Studies show that these informal

Local Adoption Leader

Later Adopters

leaders are identified by the majority of farm people as neighbors and friends rather than as "leaders," because that's what they are to these people. They are not thought of as leaders by their associates. Their leadership is not established by election—it's established by actions which have won the respect of their associates. These informal leaders are not necessarily the open seekers of offices in formal organizations. They are not necessarily the volunteer leaders who recommend themselves to the county agent or the vocational agriculture teacher for service. Their leadership is oriented toward their following rather than toward those whom they may consider to be "leaders."

Later adopters are the majority of the people in the community who adopt new ideas. This group depends primarily on the local adoption leaders for information and ideas, although some have contacts with agricultural agencies and become aware of ideas through mass media. The later adopters have less education, participate less in community affairs and are older than those who adopt ideas earlier. There are some to whom a practice might apply who never adopt it. They have even less education and social contacts than the later adopters.

In any community, there are always some to whom the practice does not apply and for whom these generalizations do not hold true.

CHART 1. SEQUENCE OF INFLUENCES IN THE ADOPTION OF PRACTICES WITHIN A GIVEN AREA

SUMMARY AND APPLICATION

People go through several stages in learning about and in adopting new ideas. These stages may be classified as: awareness, interest, evaluation, trial and adoption. Mass media make their greatest impact in the awareness and in the interest stages. Neighbors and friends are most important as sources of information in the evaluation stage. In the trial stage agricultural agencies and neighbors and friends are important. Dealers and salesmen are important as sources of information in this stage when commercial products are involved. There are also variations in the types of communication used according to the nature of the change.

Variations in rates are influenced by individual, group and community factors. These

condition the decisions of farm operators in considering new ideas and practices.

The adoption of a new idea follows a sequence of influences from the time an idea is formed until it becomes generally accepted. In this diffusion process people may be classified into types based upon the sequence in which they accept new ideas and practices as follows: innovators, community adoption leaders, local adoption leaders and later adopters.

One of the functions of leaders among farm people is to diffuse new ideas and practices. It is their task to expedite the process of getting ideas from their sources of origin to those who can use them.

To be effective in this process one must know what techniques to use at the different stages and how to mobilize them effectively.

He must also know in which stages in the diffusion process the people are. For example, it would be a waste of energy to devote educational efforts to instruct people how to do something—information pertinent to the trial stage—when the majority of them are at the stage of needing data about what the idea is—i.e., at the interest stage.

In order to be most effective, an agricultural leader must know how to use all of the communications channels available to him. For example, the informal leaders have contacts and influence with people which no other channels can provide. The most effective use of the informal leader requires that one work with him on an informal basis. Giving the informal leader public recognition may jeopardize his position of leadership and thereby the influence which makes him an important resource in extension and other programs.

In order to be effective as an educational worker one must understand:

a. The nature of the acceptance process.
b. The values and aspirations of the people with whom he must work.
c. The formal and informal group relationships within his area.
d. The availability and most appropriate use of mass communications.
e. The sequence and interrelationships of influences in acceptance of new ideas.

In addition to knowing how to use the various channels of communication in bringing about adoption of practices, educators must be sensitive to the customs, values and aspirations of the people with whom they work. Changes are accepted when they support these values and aspirations. Hence it is important to show how and to what extent they do so. For those most concerned with the security obtained by owning their farms free of debt, one can show how the adoption of improved practices will contribute toward this end. For those placing a high value upon material conveniences, one can show how the adoption of improved methods of farming will help obtain these conveniences.

Finally, the person attempting to speed up the process of acceptance of new ideas and practices must be aware of the total process and the sequence of influences at different points in this process. It is necessary to intermesh the impersonal with the personal and the technical with the nontechnical. In this sense the influencing of change is an art which requires sensitivity to the many phases of the acceptance process; it also requires the ability to make most effective use of the various means of influencing acceptance.

APPRAISAL GROUP I

MARKETING INFORMATION AND STATISTICS AND OUTLOOK ANALYSIS

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Consultant's Report

One way to make the free enterprise system work better is to improve the knowledge of producers and consumers. American agriculture is out of balance. There are more resources devoted to agriculture than are necessary to permit people in agriculture to earn incomes which would just equal the returns they would earn in any other employment. And within agriculture we often produce the wrong composition of farm products. Improved knowledge can help to correct these causes of imbalance.

This requires a more accurate outlook analysis and in turn a continuing effort toward getting the results of this outlook as widespread among producers and consumers as possible.

In spite of an increase in informational services in agriculture, most farm people have little information available about the longer term income prospects in farming. Our agricultural outlook work to date has been largely focused on the short-run. This is important in encouraging producers to make the necessary year to year adjustments in the makeup of their farm output, but it doesn't help them much in their decisions as to whether to shift into enterprises covering more than a year or two. Nor does it help in providing them with information to arrive at the decision whether to farm or to take a job in town.

The increased emphasis by the Agricultural Extension Services of the Land-Grant Colleges in orienting their programs toward farm and home development calls for knowledge about the longer run income prospects. If advice is to be given to people on shifting between enterprises such as dairying, poultry raising, and the like, knowledge about future income prospects over a period of years is important. For the capital investments and the income expectations must cover a basis of longer than one year.

If people are to shift out of agriculture when their opportunities are greater in non-farm employment, they must have some measure of what the future income opportunities are in agriculture in making such a decision.

Very little work has been done on the longer range outlook analyses. Additional work in developing and sharpening the tools for analysis is a fruitful field for research.

One of the limitations in the improvement of the outlook analyses, particularly the shorter run outlook analyses, is the uncertainty over the adequacy of statistical data. As Ray Bressler pointed out: If the data are inadequate for research workers, they certainly must be inadequate for the businessman or farmer who must make business decisions based on them. Much progress has been made in the last decade in expanding the work of agricultural crop and livestock estimates and in improving some of the methods of making the estimates. In other areas, such as forecasting the pig and the calf crop, very little progress has been made in the last twenty years. Further research is needed to find out the accuracy of the current estimates and to study ways of improving and expanding them. Can the time be shortened between when the

basic data are gathered and when the estimates are released? Can more complete information be given? Examples of needed data are monthly reports of calves born, pigs born, sows farrowing, sows bred, and monthly estimates of cattle on feed. Could a cross classification for cattle on feed be developed, reporting cattle on feed, showing weight by length of time on feed? In years when crop yields and acres are subject to change, crop estimates should be made more frequently than monthly. More comprehensive forage and feed reports might give a better gauge to measure prospective feeder cattle and lamb shipments. Could soybean and grain sorghum crops be estimated earlier in the season?

The American Farm Economics Association has a subcommittee working on this problem. Their findings need to be given wide publicity. For in many cases, the only way to implement these suggestions is to get additional funds. The history of expanded crop and livestock estimates is one of "greasing the wheel which squeaks the loudest." People must become aware of the need for additional basic data in order to facilitate the marketing research in outlook and other areas.

A third area considered by this appraisal group dealt with research on market news and information. Here is an area where research about the adequacy of present services is largely lacking. Consideration needs to be given as to whether market reports are, in fact, accurately reporting the market. Are they getting across to farmers the basic information on just what the market prices are in fact? How well do farmers understand the terms? Is additional market information needed? The appraisal group was strong in its opinion that just reporting what market news is does not constitute research.

In general, one of the difficulties of this appraisal group stemmed from the fact that the subject assigned it was very broad in scope and the people attending the group were varied in their interests.

Secretary's Report

Appraisal Group I adopted the following as its general area of responsibility:

(1) The service areas of market news, production statistics, and situation and outlook analyses (including marketing information for consumers and production costs). For convenience of reporting, the three distinct service areas are referred to as marketing information, although we recognized that this term is not entirely appropriate or exclusive of other types of information.

(2) Problem areas common to the above three types of marketing information include (a) determining the uses of and needs for marketing information, (b) developing new methods, or selecting the most appropriate methods from among many possible

methods, for collecting, analyzing, and disseminating marketing information, and (c) evaluating the accuracy of the reported information.

Admittedly, these topics are not all that might have logically been discussed. However, these specifically exclude areas of responsibility of Appraisal Group II, Pricing and the Organization of Markets, and represent topics which we assumed would be touched on only lightly, if at all, by Appraisal Group VI, Public Policies and Programs Affecting Market Prices and Distribution.

Nature of the Service Area

Some, if not all, marketing information is also production information. For either use, the three items—market news, statistics, and outlook—are at best only a part of the total considerations individual managers should take into account in decision making in our private enterprise economy.

The functions of collecting, analyzing, and disseminating marketing information are performed by a large number of people employed primarily by public organizations. Market news and statistics operations to a great extent are coordinated or controlled at the Federal level. Federal and State governmental organizations, trade associations, trade and farm publications, and private agencies employ outlook workers. Dissemination is performed through diverse means also.

Public marketing information services are staffed by professional personnel—statisticians, market reporters, and price analysts. They are selected partially on the basis of the extent to which their formal training will contribute toward accomplishing the goals of the services, and their activities and procedures are usually cleared through the same types of administrative reviews, including review by responsible statisticians, as are marketing research projects. Therefore, the nature of the activities of most workers in the areas of marketing information services can be simultaneously and effectively altered by research if the results are accepted and acted upon by a relatively small number of administrators.

Much of the market news, statistics, and outlook analyses currently supplied by government are supplied for the same reasons as are marketing research findings—to improve the efficiency of our marketing and pricing systems. Although in existence long before the passage of the RMA Act of 1946, all three services have received increased emphasis since that time as means of increasing competition and reducing costs in our marketing of agricultural commodities.

Nature of the Research Area

Many problems, in addition to those of choosing among alternative procedures for performing the service functions, are solved internally, both formally and as "trouble shooting," by these services. In a few cases, external research recommendations have been rejected by certain services because the procedures had already been tried and found inadequate by the services. In other cases, these services have made it known that they feel qualified to solve certain problems internally with better results than if full-time research personnel attacked the problems.

Thus, it was quite apparent to this group that research accomplishments in the area of marketing information, particularly for other than basic research, could not be appraised by reference to bulletins alone. We felt that we also were required to rely rather heavily on the several members representing marketing information services. Their knowledge of internal problem solving and of problems remaining to be solved are vital elements of the group's report.

Appraisal of Completed Research

Use of and Needs for Marketing Information

Few research bulletins describe the ways in which particular series of data or particular pieces of information are used. Fewer still measure the needs for information. Thus, most information services have been inaugurated without full publication of the reasons for starting them. There is one good reason why this is true. Our inherited theory of perfect competition presupposes complete knowledge available to participants in a private enterprise system. Because the absence of this information seemed potentially to work to the disadvantage of some or lower the total benefits of our private enterprise system, government assumed the function of providing as fully as feasible all unmet needs for information. Concomitant of the government's responsibility to provide information is the responsibility of the individual to make known his needs to government. Many have done so with regard to information, and many more know that government is receptive to such requests.

Government acts as a retailer, supplying those items of information demanded, but not promoting new items unless they appear to be clearly to the good in public welfare. The service agencies do occasionally attempt to reappraise the "turnover rate" on their items. These are more periodic than continuing, and the number of inquiries about the programs, complaints, surveys of mailing lists, etc., serve as indicators of the need for reappraisal. One such administrative review occurred recently when the United States Department of Agriculture invited in a committee of representatives from the poultry and egg industry to advise on the Federal statistical and market news programs. Another is now under way for all commodities through the Department's Committee on Research Evaluation. As knowledge of the marketing sequence and of controlling interests is obtained for a reported region, or area, internal evaluation of the needs of the industry in that area for information are made.

In the opinion of this group, another factor may be credited with preventing major attempts at more scientific measurement of the needs for and uses of marketing information. This is the absence of a research method adequate for quantifying the effects of information. While the potential usefulness of each series of data, each individual report, and each forecast can be hypothesized from combining economic theory and knowledge of production and marketing sequences, this provides little basis in fact for assuming that use will be made of it. Individuals may not know of the report, they may not trust its reliability, they may prefer to plan from purely non-economic bases, their economic interests may not justify elaborate planning, they may not be aware of economic principles. All of these may affect the actual use of marketing information by those for whom it is collected, analyzed, and disseminated. They also are weighed in some way when "needs" are being evaluated.

We appreciate Dr. Fox's attention to the problems facing this group in appraising this research area. The questions he raised about appraising the value of marketing information are critical ones, but they seemed to require us to assume into existence the "economic man" of classical literature who, given the facts, automatically arrived at a completely rational economic decision. Are we to accept the hypothesis that information is used simply because it is deemed potentially useful by the economist? Are we to commit large sums of money by agreeing to meet innumerable demands for more information without some fairly reliable measurements of the effective use of this information in increasing gross returns or profits? We found no research aimed at measuring the effects of information on gross returns, profits, or welfare, and we suspect that no successful attempts have been made because of the lack of realistic and applicable motivational and decision-making principles. The reasoning processes of man remain obscure and may never be fully understood.

Nonetheless, some significant strides are now being attempted in this area. For example, a committee of the American Farm Economic Association is compiling the expressed needs of extension, outlook, and research workers, as well as others, for statistics and other material. The Marketing Research Division and the Michigan State University are attempting to develop methodology which will permit measurement of the influence of various economic and sociological characteristics of farmers on the uses to which farmers put information. This may permit to some extent predetermination of the probable extent of use by farmers of proposed new series of information. In the area of more basic research, a North Central Regional farm management project, under the leadership of Glen Johnson of Michigan State University, is under way to determine decision-making processes used in farm management and marketing by farmers.

Some specific conclusions of the group about published research findings concerning the uses of and needs for marketing information include:

(1) Many of the available reports describe the purposes of market news, statistics, and outlook analyses, but offer little proof that the information is actually used.

(2) A few reports were prepared from responses to a mail survey of receivers of the direct printed releases of market news, statistics or outlook material, which, of course, overlooks usage by indirect receivers (i.e., by radio, newspapers, word of mouth, etc.). In at least one case, an estimate of total readership (usage) for a State was projected linearly from the responses to such a mail survey. Independent variables have received little attention as determinants of use.

(3) In some cases, findings of the needs for marketing information have been contrary to the expressed needs of aggressive industry groups. Consequently, the research recommendations proved fruitless.

(4) It seems that in most cases these research projects have been developed and carried out with little or no communication between the "industry," marketing information services, and the researchers.

Methods of Collecting Information

This is an area of potential research contribution that has been addressed in completed studies. A large part of the studies have been done by theoreticians, mathematicians, statisticians, and psychologists. Sampling procedures, sampling error measurement, questionnaire design principles, memory error measurements, etc., have been developed to some extent, but proving the latest principles and the setting up of "rules of thumb" have proceeded slowly.

Internal experimentation in appropriate methods of collecting information occurs each time a new series is added or changed. Continuing series are reviewed from time to time to determine if changes in methods of collection are needed. This, in effect, is a "trouble shooting" type of research. The group felt that these experiments and reviews probably have resulted in the choice of suitable procedures, but it was questioned whether adequate dissemination is made of the nature of and the reasons for the specific choices. Research workers and others are, of course, much interested in such decisions because they are also users of the information.

Other conclusions are:

(1) Intensified research to determine universes, variability, etc., have provided in relatively short periods of time reliable bases for continuing reporting of certain series that might have required years of normal reporting to develop. Cattle on feed, commercial broiler chick placements, commercial vegetables, fruit crops, commercial poultry slaughter, and many others have been put on sound bases in short order through intensified research efforts.

(2) Research in questionnaire design, area and mail sampling techniques, and control data usages have resulted in many improvements in collection of data. In some cases, these improvements result in lower costs and in others in greater accuracy at same costs.

(3) The research aimed at development of objective yield measurements is not complete, yet this group feels that the results to date are promising.

(4) Matched fund projects under way in several States are developing means of providing useful data, but this group believes that full value cannot be realized unless these surveys and reports are coordinated to relate to the same years. Further, the total having most economic meaning may not be available since a producing area or a market does not necessarily fall entirely within a given State.

Analyses of Collected Data

Much of the analysis of data collected by market news and statistical programs is done by situation and outlook workers, research workers, and specialists supplying marketing information for consumers. Some of the analysis, however, is done by market news and statistics workers to compute other basic series of data which could be collected directly from the industry members. In addition, certain primary data are validated, reconciled, or rejected by means of comparison with other statistics or known past relationships between certain series. This research area was left out of our appraisal because of the large number of publications from research studies designed to provide measurements of past relationships, or cause-effect relationships expected to be applicable in the future, and because of the multiplicity of analytical designs. The types of studies found useful by information workers in their analyses of data include studies of market structures, marketing practices, pricing practices, margins studies, effectiveness of promotional campaigns, physical conversion ratios, etc. The findings of such studies often are not communicated to this group of potential users, however.

Tied in with the choice or development of analytical designs is the difficulty of knowing just how the result of the analysis is to be used. Outlook and consumer marketing information specialists particularly are desirous of using designs consistent with expected uses. Unlike those supplying basic data about happenings in the past, these workers are forecasting what is most likely to happen in the future. While they still must use some of the same cause-effect relationships that are used in computing estimates of happenings in the past, they must also watch at least three other scenes. These are (1) the possibility of evolutionary change in the structure of cause-effect relationships; (2) the possibility of revolutionary change in the structure of cause-effect relationships; and (3) last, but not least, the possibility that mass reaction to their forecasts may cause reversals in trends.

Specific conclusions:

(1) Much progress has been made in methods used in analyzing available data to predict future happenings. A large part of this progress has been in the adoption and refinement of statistical procedures. However, methods are still not adequate for giving accurate point forecasts within reasonable time limits and budgets.

(2) While some work has been done in developing theoretically analytical designs for providing marketing information to consumers, much remains to be done in fitting these models to available data and to most probable uses of the results. A particular problem that has been insolvable in the past, due partly to the lack of data with which to work, is in the area of localizing the predictions of retail prices.

(3) The rapid changes in technology and structure of agricultural production and marketing make it extremely difficult for data analyzers to keep abreast of changes in physical input-output ratios, cause-effect relationships, and extent of use of forecasts. Therefore, analysts can never be sure that their "models" are "ideal," and appraisal of their efforts in constructing analytical designs is hazardous.

Disseminating Information

Marketing information is useless unless it is used by managers. It is not used unless communicated prior to a manager's last chance at maximizing his private objectives by making decisions. Here again, a large part of the services of interpreting and disseminating information is performed by specialists in the Marketing Information Division, Agricultural Marketing Service; State Extension Services; national wire services; newspapers; magazines; radio; and television. Thus, a large part of past research useful in equating the costs of dissemination and the expected or presumed marginal benefits to industry of disseminating has been performed internally and informally as "trouble shooting."

Some of the findings of this "trouble shooting" are: (1) A given item of marketing information reaches a wider audience if disseminated through several media; (2) timing of presentation over radio and television has an important effect on the size of the audience; (3) visual aids are useful. However, most of the "hunches" that have brought forth profitable changes were drawn from research in advertising effectiveness, readership surveys, etc., of private advertising or commercial firms.

Specifically:

(1) No research or "trouble shooting" brought to the attention of this group measured quantitatively the relative effectiveness of various media in communicating information to various

types of potential users, or of the "multiple-media" approach to the problem.

(2) Timeliness of dissemination can be judged only by whether or not those wanting the information received it prior to the time their decisions would ordinarily be made. Some published research, as well as innumerable requests from individuals, have provided a fair basis for timing dissemination, but many problems remain.

(3) The form in which users would like to receive information of various types has not been adequately answered by research of the past. Since most marketing information goes through several hands in getting from collector to user (e.g., market reporter leased wire, AMS Area Information Office, wire services, local media, receivers), the form of the material desired by one of these "senders" may be completely different from that desired by the final user.

(4) Research to determine to what extent dissemination of outlook material must be carried to achieve the basic objective of forecasting is conspicuous by its absence. The same may be said about the possible public need for knowledge of the errors of estimates attached to current estimates released as point estimates.

Accuracy of Information

Dr. Fox advised the service people, "Know your tools; continually evaluate your accuracy." Few formal research projects have been undertaken to do this. Most reviews of accuracy are on a continuing basis and should, in the opinion of this group, remain so. Nonetheless, we raised the question, "Should we not inform our public of our findings in this area? Is it proper to permit the continuation of the public concept that released data are absolute, or should we educate users of the data of the fact that the data are estimates and thus subject to error?" The group did not answer these questions except to point out that, in the absence of published estimates of error by the services, research and outlook workers will necessarily undertake measurements periodically and will probably publish the results.

In detail:

(1) Most external research to determine the accuracy of daily price reports, crop and livestock estimates, and outlook analyses has proven relatively inconclusive because of limited access to the records of both private firms and the information services. Problems in determining contact time, in segregating transactions for overlapping time periods, and in proving quality characteristics have further complicated the extent to which the objectives of determining accuracy could be achieved.

(2) Some progress has been made in methods of measuring the accuracy of forecasts. Early projects measured accuracy in terms of direction of change only; some later ones have attempted to quantitize the differences between the forecasts and the final results.

(3) Research in this area has tended to measure inaccuracy in absolute terms, with no indication of the degree to which the inaccuracy falls within the standards of error allowed for in the programming of the statistics collection. This concept of a "built in" possibility for error would seem to be particularly vital to outlook workers inserting the released data into their prediction models. They must understand they are requesting further information on error terms.

(4) The term accuracy has been confused with usefulness by some researchers, particularly when referring to forecasts. Very useful forecasts may be completely inaccurate post ante because of the interim during which the actions taken by private entrepreneurs or Government or abnormal climatic conditions may alter the results from those indicated by the forecaster as most likely to occur. Researchers of the value of early season crop conditions have clearly specified that they were measuring the usefulness of these reports as indicators of final yield only. They should not be construed as measures of the total value of such reports. We can see where these reports might be useful to farmers in deciding whether or not increased profits can be expected from the application of fertilizer which may affect yields or in deciding on other practices.

Potentials for Future Research

A dynamic economy such as ours brings new questions concerning needs for information; redefinitions of the width of the market; methods of collecting, analyzing, and disseminating information; and of the accuracy of reported data. So there will continue to be almost unlimited potentials for both problem solving and basic research in the area of marketing information. (For a detailed appraisal of some of the potentials for marketing information and of some of the problems in the way of achieving these potentials, see Market Information, a Report of the National Marketing Workshop, Agricultural Marketing Service, United States Department of Agriculture, Washington 25, D. C., 1954.)

This group has a few suggestions for future research. One is in the area of developing reasonable bases for measuring the needs for and uses of marketing information by farmers, marketing agencies, consumers, and Government. This research will probably have to be limited to surveying the expressed needs for information in the immediate future. We feel that such studies should not

be done at the expense of basic studies to develop methods of objectively measuring the effectiveness of information. We also think that more attempts should be made to determine if and how national data or terminal market data can be interpreted to fill some of the current demands for localized information.

It is unwise, in the opinion of this group, for Government to fathom hypothetically the minds of private managers and to provide information thus assumed to be useful. Still, we believe that surveys of the needs for information should be analyzed and reported with a framework of hypothesized needs for information as one criterion for evaluating the potential usefulness of each named item. This framework should be based upon an understanding of the general nature and sequence of the production and marketing decisions in which the item of information can be properly used, and of the extent to which available series may be interpreted to meet the expressed need.

A further need is to determine satisfactory principles by which the probable end use of information in a given area may be predicted by reference to some known characteristics of the farmers, marketing agencies, or consumers, or of production and marketing functions of that area. Some strong indications that such principles can be determined are known to this group. One such indication is a recent report from the Michigan State University, which showed that there is a strong relationship between the commitment of farmers to farming as an occupation and their reading or listening to market news. If satisfactory principles can be established, they can be used both in deciding whether or not to collect specific pieces of information and in devising methods of dissemination.

In chipping away at its assigned area of research activities, Appraisal Group I continually returned to the basic questions: Does the use value of the information justify the added expense of collecting, analyzing, and disseminating additional information; of improving methods to increase accuracy; of developing new methods? These questions become particularly perplexing when, for example, a statistician is attempting to satisfy himself that the additional costs to his program will be justified by the use which private entrepreneurs will make of their own interpretations of an analysis in which his estimates are combined with other estimates or totals in a cause-effect manner. One sub-committee of this group concluded as follows: "There is a need for a fresh look at the whole information program. This should lead to outlining objectives which should be the basis for requests for funds for future development and improvement in the programs." Some members of the group felt that the information services have not reached the point where selectivity of programs must be weighed precisely.

Progress has been made in the methods of collecting, analyzing, and disseminating information, but much is still left for the future.

In market news, some experience has been valuable in indicating suitable methods of reporting area markets as compared to point markets (terminals, exchanges, auctions), but as increased emphasis is placed on reporting area

markets, many problems may be encountered. In statistics, the reverse trend is occurring. Requests for estimates of production, acreage, yields, prices received by farmers, etc., are to a large extent for local area estimates rather than for more State, regional, or national estimates. Outlook workers are being asked to forecast many imponderables. Television dissemination is being rapidly developed. New problems in collecting, analyzing, and disseminating information will be encountered if attempts are made to fill such requests, but it is impossible to crystallize all of these problems now.

Many specific problems that need research were mentioned by the group. These included:

(1) Demands for information are numerous and seem to be sufficient evidence that information is needed, but demands are often conflicting and ambiguous. Is there a logical method for crystallizing probable needs from such demands? Should we attempt to predict probable uses and decide whether or not to start or continue a service on this basis? How do we convince industry members or other groups that a service will not meet their felt needs? Can we develop a precise methodology for measuring effectiveness (value) of information, not only for a given group, but also in total?

(2) There has been a growth recently both in the size of farms and marketing agencies, and in the number of integrated firms. What effects will these changes have on the needs for information, on the methods of collecting, analyzing, and disseminating information, and on the accuracy of information?

(3) There have been some recent attempts to measure yield objectively by the use of probability area sampling with closed segments. How effective will this method be for other crops? Will it require considerable adaptation?

(4) Most users seem to accept estimates based on samples as complete enumerations. Thus, when sizable revisions of estimates occur, information workers face considerable difficulties in handling the public relations aspects of these revisions. What can be done to prevent public reaction? Should estimates always be accompanied by error terms? To what extent would this complicate dissemination or shade public confidence in the whole program? How can forecasters use such error terms?

(5) Much money is spent in collecting and disseminating information presumed to be vital to decision-making, only to have some people complain that they receive the information too late to use it. What is the difficulty here? Is it that these people misconstrue the purpose of the information? Do they request certain information that has to be generated by the very same decisions in which they wish to use such information? Is it a breakdown in the channel of communication?

Are marketing sequences so close in time that current methods of collecting, analyzing, and disseminating information are inadequate in speed? What shortcut methods might be adopted?

(6) Much of the planning that results in changes in agricultural enterprises and activities and in marketing facilities and practices depends upon forecasts of intermediate and longer-run conditions. Can more adequate methods be developed for forecasting production and marketing costs, changes in consumer preferences, and market potentials? (See Consultant's report for more concepts and details.)

(7) Outlook statements rely to a great extent upon structural relationships of the past, although most workers recognize that these may change within the period for which the forecast is made and look for any evidences of probable changes. Can a more precise method of predicting structural change be developed?

(8) Consumers are assumed to do most of their food shopping at a single store; thus, they are not price conscious on individual items. This has tended to delay any major activities in retail price reporting. Would retail price outlook be of value to consumers? Would a report of the range in retail cost of a "market basket" of the major food items cause them to compute costs at alternative stores from newspaper ads, and thus promote more effective shopping? Would information on relative costs (per serving, etc.) of different items prove useful?

Many other problems still facing information services can be implied from the earlier appraisal of completed research.

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APPRAISAL GROUP II

PRICING AND THE ORGANIZATION OF MARKETS

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Consultant's Report

My assignment was to give my personal appraisal of research programs and needs for a limited phase of agricultural marketing research since 1946. During the first two sessions of the Appraisal Group meeting, the Group developed a basic outline of objectives and criteria to guide it in conducting its program during the Workshop. I had the benefit of the basic outline. Using it as a guide I developed my own viewpoints relating to the following:

1. Present and past procedures for selecting projects leaves much to be desired. State agencies frequently use projects as a training device for graduate students without giving proper consideration to their longrun or immediate value in problem solving. While this is a laudable aim, it is not the purpose for which research funds are made available. The quality of and the delays in research reports due to this procedure are difficult to justify.

2. Objectives frequently have been too broad and too numerous to accomplish. My review of a number of Federal, State and Regional projects during the last few years has convinced me that many objectives are discarded while the project is in progress or they are restated in the process of report writing. This deficiency is due mainly to (1) the lack of information and cooperation from marketing agencies, or (2) to the inadequacies of personnel in terms of number or training and experience. There is a serious need to revise our concepts about our ability to attain our research goals during a period when it is difficult to find ample staff to attend the numerous meetings that have come with more liberal financing of marketing research. Narrower objectives will come as we obtain researchers and administrators with more experience and training.

3. Historical-descriptive type studies of marketing trends, practices, and market organizations loom large in the published literature on pricing and organization. Comparative cost studies based on accounting data characterizes the work in marketing costs. Several satisfactory reports on prices and pricing efficiency appear in the list of desirable research contributions. While marketing people generally have resorted to the survey technique as a means of getting basic data with which to work, it is significant that the reports that have gained widest professional praise are those that use existing or secondary data. On the other hand, trades people remain partial to reports based on survey data, provided the reports are not histories when they are released. One reason for this difference lies in the fact that reports based on secondary data are prepared to illustrate economic principles in pricing efficiency or to demonstrate the economic impacts of various supply-demand factors on price and operating efficiency rather than to show the effects of specific actions on the firm or industry or commodity at a given time.

While there is a good deal of lamenting among economists regarding the inadequacies of our research tools, the fact remains that existing research tools are much better than our ability to use them or the data with which we have to work.

My own belief is that we have badly overworked our sampling techniques as a device for obtaining accurate marketing data for expanding into national or regional or local figures. Frankly, I do not understand how nor do I believe that sampling is a very useful device in marketing research relating to efficiency studies of costs, organization, and pricing. Sampling like any other statistical device is a tool that is useful under specific conditions. No good craftsman uses such a tool as a sign of erudition. However, he does use it to get soundness of structure and precision in joints, angles and arches. In other words, a barn could be built with a square, a hammer, and a saw. A house requires, in addition, a level, a brace and bit, and a miter box; and a temple necessitates the addition of a coping saw and a caliper.

4. The nature of research in the area of pricing and organization is not likely to lead to startling findings and conclusions as long as it deals with efficiency of the existing system. When and if research workers begin to deal with changes in the existing structure of markets, practices, and market

organizations we can expect a great deal of attention. To me it is important that none of the research reports from the USDA or state agencies anticipate any changes in our existing structure, except as it relates to methods of paying producers for their products, the adoption of the co-operative type in place of the proprietary type organization, or to the revising of present procedures used by USDA crop reporting or Market News reporting.

The timing of research and the timing of the reporting of research is very important. The failure of research people to fulfill stated and implied promises to business firms that make available marketing information for research purposes is near tragic. Our most common appeal is that private records are urgently needed to answer quickly some "important" questions. The implication is that the answer must be forthcoming quickly to stave off disaster. Public relations practices of large concerns cause these firms to release data against the better judgment of their operating people. Too frequently the data are gathered, the coding ritual is begun, the IBM schedule is set and a year or two after the "urgent" survey the mass of statistical tabulations are on the desks of the research leader. Then things happen in rapid-fire order. In state agencies it is time for sabbatical leave; in the USDA it is time to make another survey or to stop to do research to evaluate research we have not done since the last survey. This "boot hill" of research projects is a simple reminder of poor judgment and poorer administration. The temporary wood grave markers do not last long and few project leaders and administrators remember to get permanent replacements. Nevertheless, names and kind words are dimly visible. They read -

Died because of lack of attention.
Died because of poor planning.
Died because it was unimportant.
Remembered because of the trouble it caused business firms.
Died because of grief over its master's new favorite.
Died waiting for its master to play with a new model.

In recent years several business firms have spent thousands of dollars annually providing the USDA and State Experiment Stations with information for "boot hill" projects. During a period of high income and excess profits taxes the business public relations people could argue the low net cost to the firm. With declining profits this situation could change quickly. We may be approaching the point where the public relations departments will have considerably more difficulty in selling their version of the biblical idea "it is more blessed to give than to receive."

I believe it is very unfortunate that so many of our published state reports on phases of marketing research have turned out to be masters or doctors theses, and thereafter the authors are not heard from again. In the USDA our problem is not much different. The extremely heavy competition for personnel within the Department has permitted the younger employees of research agencies to move into a better paying position in action agencies without difficulty.

A critique such as I have just gone through seemed necessary to me to place our problems in their proper perspective. I believe our accomplishments far outweigh our deficiencies. We progressed satisfactorily in improving the store of factual information that is a prerequisite to progress in a new area. It is very difficult for most people to realize the painstaking detail needed to build the blocks that constitute the body of knowledge and experience for progress. For the layman a most striking illustration of man's efforts to understand nature and to reduce natural phenomena to quantitative measures can be found in Hogben "Mathematics for the Million." The 20th Century child passes without a thought the notion that many, many people spent time and thought planning and constructing the first wheel which is basic for much of today's technological progress. Neither do you nor I give more than a passing thought to Thomas Aquinas 13th Century recognition of the relationship of the heart and the circulatory system of man and the 300 years that elapsed until Sir William Harvey traced the circulatory system of the human body, determined its function and relationship to the heart - a series of facts that depended entirely on Harvey's ability to dissect the human body.

The bits of information we have been assembling and analyzing regarding markets, channels, pricing, practices and organization are leading clearly to a better and wider understanding of our system of processing and distribution of farm product. This information would be much more useful if we could standardize our terminology, a need which recognized by Grether and others in the 1930's and some preliminary work was done by a committee of the American Marketing Association.

Creditable and useful work has been done in marketing margins by Been, Waugh, Ogren, Bressler, Howell, Parr, Herrmann, and Brensike. Numerous channel and organization studies are informative and useful. The work of Bredo, Foelsch, Spencer, Pritchard, Seaver, Mighell, Howell, Clodius, Cook, Herrmann, Koller, and Baum are among those worth mentioning. The excellent contributions of Engelman, Manchester, Foote, Fox, Hoos, Holbrook and E. J. Working, Shephard, Cook, and Howell add measurably to the useful literature that has come out of research financed in part or fully by RMA funds.

Despite the forward progress notable gaps remain in our research in location studies, management practices, detailed cost work, and the relationship of prices and organization to marketing efficiency. I believe the area of organization and management provides one of the more important and fruitful research areas.

My formative years were spent in a community where an asafetida bag was a common preventive for colds, measles, mumps, whooping cough and other childhood ailments. This asafetida cult passed out about the same time the Ferry and Lily feed names became less conspicuous on the undergarments of the underprivileged. This experience has left me allergic to using marketing research as a preventive of all ills in the field of processing and distribution of farm products.

In a speech to the AFEA in 1949 and again at the Purdue Marketing Workshop in 1950, I cautioned that marketing research is not a cure-all. It may indicate a direction for a cure. The facts it may bring together might aid management in preventing problems from arising. But management does not have to use them. In fact marketing may continue inefficient but it can continue. On the other hand, ingredients a druggist mixes in a prescription may mean the difference between a well patient and a dead one. Likewise the chemist compounding TNT either produces the right formula or he is likely to do any further compounding in the next world.

Secretary's Report

The group initiated its discussions by defining the area of economic research assigned to it, establishing the general objectives of research in the area, and developing the principal criteria for appraising research. Following these discussions, the group undertook the primary task assigned to it of appraising past and current research relating to pricing and the organization of markets for farm products.

Definition

Research on pricing and organization of markets is concerned with the nature and functioning of marketing organizations, channels, and practices involved in the buying, selling, and pricing of farm products, with the trading arrangements under which exchanges of products take place, with marketing margins and their composition, and with the competitive structure of markets.

Research Objective

The general objective of research in the field of pricing and organization of markets, as defined above, is to increase the efficiency of marketing agricultural products through developing, organizing, and disseminating information and analyses useful to individuals, firms, groups, and Government agencies in the making of decisions affecting the exchange of farm products and the economic and institutional structure of markets.

Appraisal Group Objectives

The objective of Appraisal Group II was to evaluate research accomplishments of the past ten years in the field of pricing and organization of markets for farm products. This evaluation was made in terms of criteria which may be summarized in the following basic questions:

(1) Were the problems chosen for study important, clearly defined, and at least partially solvable through economic research?

(2) Were research objectives specific, clearly stated, consistent with stated problems, and economically significant?

(3) Were the procedures selected appropriate for the tasks undertaken and were they correctly used?

(4) Were the findings and conclusions logically derived and clearly reported?

(5) Has the information provided by the studies been useful in the making of decisions affecting the efficiency of marketing, in improving public understanding of marketing processes, and in developing a body of knowledge about marketing and research tools useful to researchers?

Appraisal

To facilitate appraisal and discussion within the group, research in the field of pricing and organization of markets was divided into four subareas. Because of the high degree of interrelationships among the problems treated by the available literature in these subareas, the divisions are admittedly somewhat arbitrary.

Marketing Margins and Their Composition

Research designed to measure marketing margins and costs for farm products has been, and continues to be, conducted primarily to satisfy insistent demands of legislators, farm, trade and labor groups, and the general public for information on margins, their principal components, and changes in margins through time. These demands appear to be based (to a considerable extent) on an apparently widely held belief that marketing firms are obtaining excessive profits which enlarge marketing margins unduly and which are detrimental to both producers and consumers. Another seemingly widely held belief is that high marketing costs are primarily responsible for wide margins on farm products and are also adverse to the interests of producers and consumers.

The problem and objectives of studies of marketing margins have generally been quite simple and clearly stated. Appropriate research procedures have, on the whole, been correctly used. The study findings have generally been logically derived, but often not as completely as might be desired. Information provided by these studies of marketing margins and costs appears to have been disseminated and used widely. The most important use appears to be in reducing public misunderstanding about the nature and amounts of margins and costs. Extension workers apparently have made considerable use of published data on marketing margins and costs in meetings attended by farmers, homemakers, and others. Some private firms and trade groups, especially those most sensitive to public attitudes, have used data from specific studies as guides in adjusting margins. The studies also provide useful information for

researchers in developing more penetrating analyses of marketing costs. The studies, however, have not proved or disproved the presence of excessive profits of marketing firms and to this extent have failed to satisfy one of the demands for them.

One of the major difficulties confronting researchers in measuring marketing margins is the inability of many marketing firms to supply needed information because of inadequate records. Another difficulty is the lack of full comparability of data received from firms using different methods of accounting. Standards by which excessiveness of profits can be measured and evaluated are also vague or unavailable. Other needs for research on marketing margins include (1) development of better means of accurately correlating prices with products of specified grades and marketing services, (2) development of less expensive techniques of securing essential data on a continuing basis for a large number of farm products and market channels, and (3) expansion of the studies to provide more detailed analyses of the components of marketing margins.

Marketing Channels

Channels may be viewed as the circulatory system of the marketing structure. Knowledge of the nature of the flow of the mighty stream of goods from farms to final users is necessary to understanding the marketing system as a whole and specific marketing problems. Information on marketing channels, therefore, probably is most valuable in improving public understanding of marketing processes and in facilitating further analyses of marketing problems.

Most of the published research on marketing channels has been conducted as a phase of projects primarily concerned with other problems. Other studies appear to have been carried out as investigations preliminary to other work. Only a few complete and thorough descriptions of marketing channels for farm products have been published. A considerable number of reports are incomplete and lacking in thoroughness, and do not evidence clarity of purpose or design. In addition, the lack of standardized definitions and terminology for the various channels, practices, and institutions involved in marketing seriously handicaps attempts to compare findings of studies on marketing channels. This detracts materially from their usefulness, not only to the general public but also to researchers.

Much value to farm, industry, and other groups, including marketing researchers, would accrue from a research program designed to accumulate, organize, and disseminate a considerable body of knowledge on marketing channels and closely related marketing activities for all the important channels and farm products. Such a series of studies would not only promote public understanding of marketing, but would also provide researchers with essential information for economic analyses of many marketing problems.

Market Organization and Structure

Numerous studies of the organization and structure of markets have been completed. They range from largely theoretical treatments in broad aggregative terms to detailed descriptions of specific markets. In general, markets subject to Government regulation appear to have been studied more frequently and thoroughly than other markets. Perhaps there is a greater demand for studies of the organization of publicly regulated markets and essential data are more readily available.

Although most of the research on market organization and structure has been largely descriptive in nature, relatively few studies provide adequate, thorough, and clear descriptions. The design and purposes of the many studies are uncertain and this has detracted from their value.

Relatively few studies appear to have been designed to analyze the impacts of marketing institutions and structures on the economic performance of markets for farm products or the impacts of changing patterns of production and technology of marketing on market structures. Still fewer appear to have achieved their objectives even partially. Difficulties in securing essential data, inadequacies of research procedures, and other factors may have been responsible for these results. The few broadly aggregative theoretical models of markets which have been constructed illustrate clearly the wide gaps in existing theories of markets and marketing which most certainly are a deterrent to progress in research on market organization and structure.

The need for thorough and detailed descriptions of the organization and operation of markets for farm products is great. Such studies could have at least two values: (1) promoting public understanding of marketing, and (2) providing bases for much needed analyses of the impacts that different types of market organization have on the economic performance of markets for farm products. These analyses, in turn, may contribute materially to improving markets and marketing functions.

Buying, Selling, and Pricing

More research appears to have been conducted on the problems of buying, selling, and pricing of farm products than on organization of markets. This is not surprising in view of the importance of and strong public interest in prices and pricing problems in the marketing of farm products.

Published research in this subarea covers a wide range of buying, selling, and pricing situations, interrelationships, and problems. Some studies deal only with local markets or narrowly defined problems. Others are concerned with national markets or problems of great scope. Research procedures vary widely from simple description to complex analyses involving advanced theoretical and statistical methods. There is also a wide range in the quality and apparent value of the studies in providing information useful in the making of decisions affecting the economic performance of markets for farm products.

On the whole, studies in this subarea of buying, selling, and pricing of farm products have dealt with important and continuing problems such as (1) price relationships and behavior and their causes in both local and broader markets for farm products, (2) the comparative efficiencies of alternative pricing methods and systems, (3) means of improving the accuracy of establishing farm product prices through more precise measurements of product quality, changes in specific pricing practices, improving market reporting, and other ways, and (4) the price and related nonprice buying and selling practices of particular firms or groups of firms.

Although problems in buying, selling, and pricing farm products have received more attention than other phases of the field of pricing and organization of markets, the total expenditure of research efforts on these problems has been small in relation to needs for information on them. A vast quantity of highly useful information awaits discovery and development by researchers interested in describing and analyzing, buying, selling, and pricing practices and their impacts on prices, marketing firms, and the economic performance of markets for farm products.

For example, a mere handful of studies have been made of the nature of and factors influencing the decision-making activities of managers of marketing firms in establishing their buying, selling, and pricing policies. In a highly decentralized marketing system in which marketing decisions are made by thousands upon thousands of relatively independent marketers, the need is indeed great for analyses of these decision-making activities which would add much to our understanding of marketing and which could point the way toward solutions of important problems. Of particular importance are studies of the buying and selling practices and decision-making within the newer types of marketing organizations which seem likely to grow in importance in the marketing of farm products.

In recent years, considerable progress appears to have been made in the development of more precise and effective tools useful for studies of buying, selling, and pricing of farm products. Increasing numbers of research personnel have been trained in their use. But much room for progress remains. Furthermore, major gaps in economic theories of pricing and marketing, lack of needed data and the absence of a well organized and sizeable body of knowledge of market structures, channels, and practices constitute potent impediments to research progress in this area.

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APPRAISAL GROUP III

EFFICIENCY OF MARKETING OPERATIONS

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Consultant's Report

Increasing operational efficiency of the firm has long been one of the prime objectives of marketing research. For years agricultural economists have had a more or less singular approach to this problem - that of measuring costs of performing given functions by different firms. These in turn when reported to the industry served as "general" measure of efficiency and have facilitated to a limited extent an exchange of ideas among firms.

The general goal of research dealing with the Efficiency of Marketing Operations is the reduction of marketing costs. The area of study is usually considered to include all of the physical functions required to move the product through space, time and form from the point of production to the point of consumption.

The early efficiency studies by agricultural economists attempted to measure the level of industry costs and the factors associated with the firm-to-firm variation.

Accounting records generally provided the basic data for this type of study. The procedure used in most cases involved the determination of average costs and volumes for each of a group of sample plants. The cost-volume data were frequently presented as a scatter diagram, with an average regression line fitted to the data. The fitted line or curve showed the average relationship between plant volume and costs. Unfortunately this type of analysis includes a number of limitations such as: (1) accounts of modern businesses are not entirely statements of facts but are, to a large extent, expressions based partly on accounting conventions, partly on assumptions, explicit or implicit, and partly on judgment; (2) the price paid for the various factors of production may vary from firm to firm and accounting data usually do not provide a basis for making these data comparable; (3) output data are usually expressed on a seasonal or annual basis and they do not provide information necessary to adjust for varying rates of output; (4) the cost and volume relationship represents some combination of the effects of scale and of excess capacity with insufficient detail to determine net effects of each; (5) the reported fixed costs reflect variation in such items as purchase dates of plant and equipment, and rates and methods of depreciation; and (6) accounting records do not reveal detailed information regarding work methods, delays and idle work time.

As a result, it is only by chance that the cost-output observations estimated from accounting data will approach the level of the long-run cost function which represents the lowest possible average cost of producing any output when the entrepreneur has adequate time to make desired changes in all factors of production.

From this it is easy to see that research studies which attempt to measure relative efficiencies of different types of plant operations from accounting data alone result in rather crude and inconclusive results.

In order to really measure the relative efficiency of alternative types of plant operations it is necessary to estimate a long-run cost function which represents various discontinuous combinations of non-durable and durable factors with every combination of durable factors representing a plant.

Early in the 1940's agricultural economists began to apply some of the principles that had been developed in the field of industrial engineering. Some took limited training in this area, while others joined with engineers to work on common problems.

This type of approach is strictly a problem-solving approach. It can be used for efficiency studies of varying degrees of intensification. For example, in the first degree of intensification detailed engineering data can be combined with accounting data to estimate the relative cost of the various work methods. A second degree of intensification includes the development of

new technologies. Synthesizing of the least-cost combination of technologies into model plants would be considered the third stage.

This approach like all other approaches has advantages and disadvantages. Some of the advantages are: (1) It is possible to compare the operational costs of alternative technologies for varying rates and conditions of operation; and (2) the effect of changes in the price of factors upon plant costs can be estimated directly by applying a new price to the synthesized production standards.

Some of the principal disadvantages are: (1) The resources required for this type of study are often greater than those available for most types of marketing research projects; (2) some of the more efficient technologies which are already in use may be overlooked; (3) production standards based on the engineering data usually represent conditions in particular plants for relative short periods of time and for only a limited number of workers and therefore unless the standards are compared with some measure of actual rates of performance to see if they represent reasonably efficient levels of performance the synthesized plant costs may vary considerably from actual operating costs; (4) the engineering approach assumes "reasonable" efficiency of management regardless of size of plant -- this assumption may not be true for all types of operation; (5) in the synthesis process some rather important costs may be overlooked; and (6) it is often difficult for industry people and extension workers to understand how the results can be used.

Many of the difficulties of both the accounting approach and the engineering approach can be overcome at least to some extent by combining two into what might be called an economic-engineering approach. The procedures involved include obtaining detailed input-output data of labor and equipment, developing of production standards, synthesizing the production standards into alternative work methods, applying uniform prices to the factors, estimating the relative costs of the various work methods, synthesizing the least cost combination of the production stages into model plants of varying sizes, estimating the short-run plant cost curves, aggregating the short-run plant costs into long-run cost curves, and synthesizing an industrial reorganization which will minimize long-run industry costs.

A complete accomplishment of these steps would require the combining of several disciplines into a single research team. This type of team could most conveniently be headed up by an agricultural economist and would include such workers as an industrial engineer, an accountant, a biological scientist and a statistician. In addition, the services of other workers such as graduate students would be required to collect the data.

The results of the research work can be used by management as a basis for increasing efficiency of plants already in production, for planning new plants and industry reorganization. Uncontrolled or automatic evolution cannot be expected to result in a system closely approximating the optimum. If the

potential industry gains from increased efficiency are to be obtained, it is necessary to have an active program of reorganization. It is therefore recommended that an extension specialist, well trained in the fundamentals of research, be added to the research team.

Secretary's Report

Appraisal Group III devoted its time to a review and appraisal of research related to the efficiency of marketing operations. In order to cover as much research as possible the group was divided into subcommittees. Each subcommittee was assigned a particular area for study. The areas included research methodology and the marketing operations associated with dairy products, eggs and poultry, field crops, livestock, transportation, and fresh fruits and vegetables. This report summarizes the findings of the subcommittees.

Dairy

Dairy studies in the last 10 years have covered each of the steps in the marketing channel. In some of the steps research has been particularly intense to the point of overlapping and duplication of effort. In other steps there is a need for more research.

In recent years a great deal of attention has been given to the analysis of the efficiency of milk and cream assembly. A great deal of consideration and study has been given to bulk handling of milk at the farm level. State, regional, Federal, and private agencies are studying the implications of this new technique. Coordination of these studies would result in early completion of the research and minimize duplication.

Studies in transportation have been concerned with tank truck methods as well as with the elimination of route duplication in the assembly of milk from farms. A study recently initiated will endeavor to compare the costs and physical inputs and outputs in bulk and can hauling of milk. Comparisons will be made of various degrees of conversion to bulk and under various operating conditions.

Dairy processing studies have been numerous in the last 10 years. Recently, input-output analyses and the engineering approach have been used in a butter manufacturing study in Iowa, in a fluid milk plant in Indiana, in dry milk plants in Minnesota, in butter-plant studies in Idaho, in a model-milk pasteurizing and bottling plant study in New York and Virginia, and many others.

There have been relatively few studies concerned with the dairy storage problem. Research in this field has been concerned with storage costs, warehouse location, layout and design, materials handling, size of business, and

so on. However, the results of these studies have not displayed any distinctive methodology or results.

Research on wholesaling of dairy products in the last decade has been devoted to the wholesaling of fluid milk and related products. Costs and physical comparisons have been used to determine the efficiency of the operations.

A great deal of work, in the retail area, has been done of the vending of milk. Every aspect of this operation has been studied by many different agencies. Coordinated effort on this work could have reduced duplication and released research personnel for other activities.

Cost comparisons and physical input-output relationships for home deliveries of milk have been determined. Customer density, milk route conditions, and so on have been evaluated.

While more and better quality work has been done on dairy marketing efficiency in the last decade, some notable gaps appear in this area of research. For example, labor costs in doing marketing (as in most other lines) are high and are still rising. In view of the high cost of this factor more attention needs to be given to obtaining even more effective utilization of labor. It would appear highly desirable to do more research directed toward the better selection of personnel; toward the training of workers in their jobs; toward efficient labor scheduling; and other elements in the better utilization of labor.

Another gap to be considered in doing marketing research is in the area of marketing management. Skilled management is a key element in efficient marketing operations, but often it is lacking. We need much more work on the component elements of effective marketing management. Here the economist needs to team up with the psychologist and other personnel technicians to get at the desired results.

In the past decade marketing research has been strong in the area of plant and firm analysis. We have not tackled with equal vigor and skill the efficiency problems we face on an industry-wide or area-wide basis. The problem of too many plants and too many facilities which are poorly located has not been approached on a comprehensive basis. This problem is very large and very complicated. Probably that is why the gap remains. It needs to be tackled by a team of competent social scientists under the best available leadership.

Eggs and Poultry

The cost-price effect of the movement of eggs and poultry from the farm to the processing or packing plant has been studied in relation to transport time, temperature, and handling methods. Many of the recommended practices

developed in this research have been adopted. This has resulted in improved quality maintenance.

Studies in this field in recent years have included refinements in previous work. A more recent trend has been toward efficiency studies in relation to the yield of product quality and its relation to input-output findings. Needed information is supplied through this research for the use of both the processor and producer--especially where commercial production has become a major factor. Further research is needed in this area on the problems of the smaller producers and their relation to present commercial processing operations.

Receiving, feeding, processing, grading, packing, chilling, and shipping operations and facilities for poultry and egg plants have been given increasing attention in recent years. A large number of research studies on these operations have been completed and many more are under way. Most of the completed research has been concerned with the cost-price aspects of existing operations of all sizes. Complete descriptions of existing plant layouts have been made. A great deal of this work now provides a historical record rather than guidelines for future development. The reason for this is that the scale of operations has changed substantially and numerous new techniques are being used.

At the present time studies are under way to test and develop the use of electronic equipment for grading eggs. The blood spot and green rot detectors will have to be integrated into present or newly developed egg grading lines.

In the future, consideration should be given to the establishment of a pilot processing plant in order to conduct studies of operations that cannot easily be done in privately owned plants. In this way a great many improved or new methods and types of equipment can be effectively tested and evaluated.

Current research work has been limited to shell egg and chicken processing plants. There is a real need for work to be undertaken in turkey plants and to some extent in duck and goose plants. Similar research should be started with egg products (liquid, frozen, and dried) processing plants. The effect of the mushrooming growth of poultry specialty plants for chicken pies, turkey dinners, and so on should be considered for research attention.

Field Crops

Agricultural engineers have concentrated their attention on improving the handling and storage efficiency of corn and grain through the design of new high capacity handling equipment of simple design. Studies are directed at solving the problem of increasing operating costs. Prior to World War II operating costs accounted for one-third of the total cost of handling and storing a bushel of grain. Today operating costs account for one-half of the total.

Turning grain at regular intervals is necessary in order to maintain quality. Research studies indicate that quality can be maintained without handling and rehandling the grain. The answer appears to be in grain aeration. That is, moving large volumes of air through the grain rather than the present process of trying to move all the grain in a storage through the air. Breakage of grain is minimized when aeration is used. The greatest benefits from aeration will accrue in flat storages. The present turning procedure requires considerable investment in additional space,handling equipment, and labor.

Limited factual information on aeration for commercial storage has resulted in some installation of inefficient systems. A U. S. Department of Agriculture publication is now being prepared which presents the best available research information on the designs, installation, and operation of aeration systems. Studies are being continued because more conclusive data are needed.

A number of research projects have covered or will cover the following subjects: Comparative costs of grain storage on farms and in commercial storages; the factors to be considered in locating, planning, and operating country elevators; the needs for additional storage capacity in the Southeast; marketing costs and pricing of grains; efficiencies, cost, and quality improvement as affected by artificial drying; improved work methods, devices, and equipment for handling grains, seeds, and feeds in commercial storages, and so on.

Further research on grain should include: (1) The effect of truck transportation on location of country elevators; and (2) quality criteria for grain.

Prior to World War II the handling of cotton into, within and out of storage was mainly done by manual methods. Since the advent of the forklift truck--with clamps and other attachments--there has been a substantial increase in the use of mechanical equipment to handle cotton. Research has been carried out in cotton warehouses in the Southeast, South, Southwest, and West to develop more efficient work methods and equipment for the physical handling of bales of cotton at warehouses. Results from these studies indicated that substantial saving in man-hours could be attained through use of mechanical equipment. In some warehouse operations savings of 50 percent, and higher, in man-hours were possible. These savings have been evidenced by the fact that during recent years several warehouse companies have reduced their storage charges in spite of the fact that labor rates have been continually rising. Several interim U. S. Department of Agriculture reports have been published and a final U. S. Department of Agriculture report is now being prepared covering the findings of this research.

Additional research is required to develop new and improved structures. These are needed to insure that the most complete and efficient methods and equipment are used for the mechanical handling of bales in warehouses.

In the past 10 years there has been a continued trend away from bag handling and storage of peanuts to bulk handling in storage. There is also a trend to the combine harvesting of peanuts. These changes are bringing about changes in handling and storage practices and requests have been received recently for help in solving some of the problems involved.

Studies have been under way for several years on the storage of farmer stock peanuts in farm-type bins. Limited studies have also been made on improved sampling procedures. It has been current practice for a producer to go from buyer to buyer with a load of peanuts. Each buyer draws a grade sample from the load; when the producer feels he has the best grade he sells his peanuts. More research is needed to develop sampling methods and procedures that will provide accurate samples at a lower cost to both producer and buyer.

In some areas there is considerable concern over the impact of changing from bag to bulk handling and storage. There is concern that the producer may lose some of his bargaining advantage. Peanuts in bags can be stored temporarily in barns and other farm buildings. In bulk, temporary storage becomes more difficult. It is believed that bulk peanuts will move into market channels at times when prices may not be the most favorable. Therefore a study of the effect of bulk storage on marketing practices should be undertaken.

Livestock

Research on marketing operations for livestock begins with that on auction markets. Fairly complete work has been done in studying the problem of moving livestock through Texas auctions. Layouts and designs have been developed for some markets to provide for efficient handling procedures. At the present time there is a study under way in the Fort Worth, Texas, stockyard which will provide basic information on the problems of stockyard operations. This study will also provide guideposts and techniques for studies of other stockyard organizations. Similar studies should be conducted at a variety of locations to develop a common body of knowledge applicable to the problems of stockyards.

In recent years studies of packing plants have been conducted but these are of a rather limited scope. There is a substantial need for research work covering plants of various sizes located in different parts of the country. This work should consider such variables as species handled and functions performed such as boning, processing, freezing, rendering, retailing, wholesaling, locker plant operations, and so on. Data should be obtained on plant layout and design, flow of materials, work methods, and sources of livestock. In addition, attention should be given to the distribution of meat from the packing plant to the branch houses and retail stores as well as through chain store procurement.

It should also be noted that there are many problems associated with marketing, transportation, and processing of wool that should have a high priority for research study.

Transportation

In some cases transportation costs amount to over half the wholesale value of a commodity at its destination market. Because of the magnitude of these costs a rate reduction or increase is felt along the entire marketing channel. In the last 10 years substantial recognition has been given to that fact. As a result, many efforts have been made to reduce transportation costs.

A great deal of work has been done in the area of reduction of loss and damage to agricultural products when moved by rail or truck. Appraisals and evaluations have been made of different types of shipping containers, loading methods, temperature controls, transportation equipment, and unloading methods. Application of the findings of this research has resulted in large savings for both shippers and receivers.

Regional as well as commodity cost and service factors in transporting farm products and supplies have also been studied. In these cases the advantages and disadvantages of rail and truck transportation have been pointed out for the benefits of producers and shippers.

Some research has been done on rate and traffic flow rate patterns and structures. Rapid changes make it difficult to keep abreast of developments in this field. There is a continuing need to review the effects of these changes on the marketing of agricultural commodities.

Many studies have considered proper maintenance of temperatures during the time agricultural products are transported to market in refrigerated motor trucks.

Additional work should be undertaken on the evaluation of various kinds and amounts of insulation used in refrigerated carriers in order to maintain proper temperatures. Proper circulation of cold air to insure uniform temperatures throughout the load also requires further attention. Increasing shipments of frozen foods will necessitate further work on maintenance of low temperatures in common carriers.

The impact of new innovations in transportation should be examined for the effect that they will have on the movement of agricultural products. Some recent innovations worth considering are trailers on flat cars (piggy back system); trailers on high speed ships; limited access toll or free highways; and bulk movement of commodities. The effective future utilization of the St. Lawrence Seaway should also be considered.

Finally, an evaluation of the transportation industry needs to be undertaken in order to determine the true extent of its competitiveness. In addition, a determination should be made of the effect that removal of certain aspects of the common carrier regulatory program might have on the marketing costs of the agricultural industry.

Fruits and Vegetables

Considerable progress has been made in improving handling methods for certain fruits and vegetables. Research has played an important part in introducing and improving bulk handling methods for potatoes and citrus fruits. It is estimated that citrus handling costs will be cut 7 to 10 cents a box when bulk movement from grove to packinghouse is used. Similar savings can be expected from bulk handling of potatoes. Effective work has been done in developing improved methods of handling apples in the storage and the packinghouse. In certain cases equipment has been designed and developed for a particular operation. This has resulted in reduced costs and in making the worker's job less fatiguing.

Efficiency studies have been made of deciduous fruit handling in California and citrus packinghouse costs in Florida and Texas. This work has been effective in pointing out how costs can be reduced and in comparing costs of several firms within the industry. There is ample evidence that the results of this research are being used.

At the wholesale level considerable research has been done in designing and improving both terminal and secondary markets for fruits and vegetables. This work has not changed existing patterns of distribution to any degree. However, it has been instrumental in bringing about greater efficiency in receiving, handling, and distributing fruits and vegetables through terminal markets. The most recent terminal market designs include facilities for meat, fish, poultry and eggs, groceries, and other food products in addition to fresh fruits and vegetables. In this way a wholesale food center will be provided in the terminal market area.

A variety of work is under way in improving handling methods in wholesale stores and warehouses. This includes dry groceries as well as fruits and vegetables. Studies have also been made in the retail stores to reduce labor requirements and to minimize operating costs.

Other work is concerned with economic factors in plant location; labor efficiency in freezing plants, costs of processing citrus; the effect of volume and quality on plant operations; and the cost of canning corn.

A great deal of work has been done on prepackaging of fruits and vegetables at point of production and at terminal markets. Packages have been designed for protection of the enclosed commodity and for consumer use. Further work is needed to determine how many fruits and vegetables can be effectively prepackaged. Cost studies should also be made to determine

whether prepackaging should be undertaken at the shipping point, at the terminal market, or in both locations.

Additional research work should be undertaken in several areas. One of the most important would be that of processing foods. The demand for processed foods has been increasing at a steady rate in recent years. Very little study has been given to the efficiency of processing operations. Information should be obtained on plant layout, facility design, equipment productivity, labor utilization, and so on. Economy of scale studies could also be made. The desirability of processing more than one commodity in a plant should be investigated also.

Further work is also needed on the problems of bulk handling from the shipping point to the terminal markets. The possible efficiencies in handling, selling, and pricing should be determined.

General

In addition to the areas of work requiring further study that have already been mentioned, another definite research need should be pointed out. In the large majority of cases research efforts have been directed at studying and evaluating existing methods, equipment, and technology. Some research personnel should be released from this type of work to devote their full time to design, test, and develop new equipment and new operations. Whether this research would be in the area of basic or applied research might depend upon the assigned definitions or the problem studied. In any event, there is a real need for research personnel to show the agricultural industries how to achieve higher levels of productivity and lower levels of cost of operations through the introduction of new technology.

Research Methodology

Professor Eric Thor, consultant for Appraisal Group III, has rather effectively reviewed the methodology used in studies that were made of the efficiency of marketing operations in the last 10 years (see the summary of his talk). In the oral review of research in this field that was given at the appraisal group meetings it was interesting to note that there was fairly common usage of several types of methodology. Some of the techniques that have been used include simple and complex comparative cost studies based on accounting data, motion and time study, work sampling, economy of scale models, work simplification, statistical analysis, plant layout and materials handling, queing theory, link analysis, linear programming, and many other specific tools.

Perhaps a precautionary note should be expressed in reference to using any one of the techniques noted above. That is the necessity for the research worker to have a thorough understanding of the tool that is being used. Some of the newer techniques used in this field, such as motion and

time study, work sampling, and linear programming, require the use of the specialized knowledge of the industrial engineer, the mathematician, and the economist. To assume that any of these techniques can be used effectively after a limited and incomplete exposure to the methodology required, simply invites invalid results. In many cases the difficulties experienced in using motion and time study as a research tool are based upon an incomplete knowledge of the tool and how it is used. The disadvantages ascribed to this technique by the consultant can only arise when the services of a trained industrial engineer are not available. Similar difficulties may arise in using the methodology of work sampling and linear programming if the statistical and mathematical bases for these techniques are not thoroughly understood.

However, after a general review of research methodology used in the last decade, it can be said that there has been a considerable improvement in the quality of the work. There has been a general shift from historical accounting studies to more detailed and precise studies. The tools and the know how of the engineer and the production specialist have sharpened and perfected the analysis. The statistical methods used in the analysis have been more precise. In general, there has been a more sophisticated use of methods and a more intelligent analysis of the data.

Utilization of Research Results

It is a real challenge to research, extension, and service personnel to find ways and means of effectively disseminating results of work already completed. The surface has hardly been scratched in getting marketing research utilized. A poor job has been done in getting research results back to key marketing personnel in a way and in the forms that they can and will use it. Publications need to be geared even more carefully to the audience which needs to take the actions desired. Wider participation of extension and service workers and industry personnel in various phases of a research project may facilitate a wider and more effective dissemination of research results. Certainly as much effort should be applied in this direction as is being applied in marketing research itself.

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APPRAISAL GROUP IV

PRODUCT QUALITY: ITS MEASUREMENT, AND THE MAINTENANCE AND IMPROVEMENT OF QUALITY IN MARKETING CHANNELS

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Consultant's Report

Our appraisal group probably is unique among those "laboring" the past few days. While it cannot be expected that a group of agricultural economists is a homogeneous lot or grade or quality, our group is heterogeneous. Included in our group are home economists, nutritionists, chemists, statistician, microbiologists, food technologists, production men, standarization experts. Add to this the agricultural economists and you have a heterogeneous group! At timesthis mixture resulted in some difficulties in communication. These problems of interdisciplinary communication, however, have not been great. Ten years ago one could not have gotten this group together, much less converse with one another. Appraisal of the progress that has been made in our area must include this one of interdisciplinary cooperation and appreciation.

A beginning has been made and that is half the battle. These workshops have stimulated this cooperation more than many appreciate.

The very fact that so many disciplines are represented in this group suggests the broad, complex nature of the area of product quality. The fact that by and large the members of different disciplines have gravitated to this appraisal group indicates a realization that, if progress in this area is to be made, it must be through understanding and integration of efforts. However, since an increasing number of researchers are interested in this broad area, joint self-criticism in objectives, in methodology, and in the interrelationships is essential to effective work in this area.

Our group, up to the present moment, has reviewed cursorily the literature available to it here in the bibliographical lists. Most members were already acquainted with much of those listed in particular sub-areas in broad fields of quality standards. Some time has been spent in the appraisal of the present status, in line with the criteria of appraisal given to us by Harry Trelogan. I shall briefly review our discussion (as a member of the group).

Our group has a gastronomic bias. We have discussed problems of definition, methodology, etc., and almost entirely in terms of food and food products. Little discussion has been had on fibers, textiles, timber, etc., primarily because no one in our group apparently has worked in these areas. But this may not be serious, as basic methodology no doubt also would have application to these commodities.

Health and Nutritional Aspects

Among the important concerns of the group was the relationship of product quality to health and nutritional qualities. Questions were raised to what extent do handling and processing techniques and re-combinations by processors impair nutritional qualities: Is the maintenance of natural fresh qualities of the food the sole criteria of nutritional potentiality of the food? In case of fresh and processed vegetables it may be useful criteria. These questions remained partially unanswered for other commodities. It was recognized that in addition to the above questions there is the perennial one of product adulteration, deterioration that remains in the realm of established regulatory agencies. Yet some instances of so-called adulteration may not have any deleterious effects on nutrition or consumer satisfactions. This last question probably is a matter for our public policy appraisal groups to ponder on.

Definitions of Quality

After considerable discussion the definition from Work Group III at the Michigan Workshop (1951) was generally concurred in that: "Quality is the combination of attributes of a product that have significance in determining the degree of acceptability of the product to users." Some of the members of the group would like to add development of potential improvement of quality to

the concept of quality. Although other definitions were considered, further laboring on definitions was considered to be unproductive in view of the limited available time.

Economics of Quality

A review by members of the group of the research in this area during the last ten years has clarified to some extent the economic interrelationships. Much more work in this area is needed in the development of a theoretical framework and of an appropriate methodology.

Identification and Measurement of Quality

Considerable progress has been made in identification. Both subjective and objective measures have improved and much more improvement is anticipated. While development of objective measures is the ultimate, it was recognized that subjective measures will continue to be important. The ultimate standard of quality must remain subjective.

Concepts and use of acceptance versus preference studies have been clarified and the beginnings of methodology for each have been developed. Various techniques under each type of study await further appraisal.

Price Quality Relationships

Price at retail level appears to have a low correlation with present quality standards. Further work in this area probably is least productive in view of greater needs in formulation of consumer standards of quality. (In language that consumers will find meaningful.)

Formulation of Grades

Qaulity standards should serve as guides to users at the level of the market for which they are designed. Present quality standards need to be continually reviewed in light of new technological developments. There is a great need for further basic development, which should be related to consumer preferences and user needs. The particular deficiency of consumer grades in this respect should be corrected.

Preventing and Limiting Quality Losses

Most research in this area is directed to prevention of deterioration and spoilage and the extension of seasonal availability of products and increased shelf life. Use of antibiotics, fungicides, sprout inhibitors, and cooling methods have been almost revolutionary in their impact. Irradiation methods

are still in early experimental stages. Greatest progress has been made in knowledge of refrigeration needs and availability of refrigeration at all levels of the market.

Obviously it is impossible to relate to you all the discussion by the group. I hope I have not grossly misinterpreted the general tenor of the discussions. I hope that all will recognize that I can only review this broad area with a particular set of glasses; i.e., that of economic - and have an imperfect exposure to the various related technical fields as applied to quality.

Some Random Thoughts

I have less aversion to working in this area than formerly. Quality and quality standards are important elements in assisting a dynamic market economy to attain the highest possible social satisfactions. Solution of physical problems in quality maintenance is part of the social innovational process and when cast in relation to social satisfaction becomes an element of the dynamic economy.

Concern about quality and quality standards are reflections of market economy - and assist in its development. Some months ago Harry Trelogan brought to my attention a book by Edward E. Gallahue[1/] which discusses the development of grades and standards in a historical framework in Europe and in this country. This author also relates standards to some aspects of price theory and development of markets. It is worthwhile reading. Another book, "Quality and Competition," [2/] by Lawrence Abbott is suggestive of some market aspects of quality and is worthy of study.

The following excursion should not be considered as definitive, precise, or comprehensive: just random thoughts on various problems.

Some Problems

1. Identification of Factors or Characteristics Which Make Up "Quality."

It appears that actually little is known of the composition of many food products in term of which factors make up "subjective" quality. Great progress has been made to identify either objectively or subjectively the various factors that contribute to flavor, texture, and color. In many cases, however, we don't know quantitatively whether measures of these and other factors are positively or negatively correlated and the relative importance of each to

1/ Gallahue, E. E., "Some Factors in the Development of Market Standards," Washington, The Catholic University of America Press, 1942. 206 pp.

2/ Abbott, Lawrence, "Quality and Competition," New York, Columbia University Press, 1955. 229 pp.

the over-all dimension of quality. Quality itself is a dimension that is subjective in nature and may remain so. Yet the goal should continue toward more objectivity commensurate with costs.

I suspect that too often we become enamored by the expert's definition of quality whose concept of quality may not be highly correlated with important segments of users or consumers. "Experts" often tend to be artists. Showing standards becomes a guide to excellence. Like abstract artists this approach may also have a limited following. Color and marbling in beef may not be important predictors of this elusive thing called quality. The question is: Do we fuss and fret too much about some of these characteristics when they may not be important elements of the composite whole as far as consumers are concerned? Yet at the same time we must always recognize their importance as guides to wholesomeness and nutritional characteristics.

2. Quality Standards and Use.

Most of our quality standards are wholesale oriented. When so oriented and developed, one major criterion should be that these standards reflect the value of the raw material to the processor. Wholesale grades that have been developed on scientific bases should make possible the payment to producers for products in accordance with their value to processors. This has some obvious implications for price efficiency.

On the other hand, consumer quality standards would be expected to be established on another foundation or basis as compared to wholesale grades (but should be reflected back). Here the criteria should rest on preference grounds. Therefore, the consumer standards may or need not coincide with those established at wholesale. Their objectives are different. For example, in the case of present live and carcass grades of hogs, our hopes for their usefulness in carrying through to consumers have not been realized.

These aspects raise further problems in the transmission of price impulses from consumers to producers where two sets of standards may be involved.

3. Quality Standards and Industry Practices.

In text books we often read that one criterion in developing grade standards is that they should be in accord with industry practice. This may be a criterion for acceptance of a proposed quality standard on the part of industry. But should we not approach the quality standards from a more fundamental approach in accordance with the job it is expected to do, whether at wholesale or at the consumer level? The industry practice on hogs until recent years was essentially one of no grades. Only until a fundamental approach to problems was developed did a grade standard evolve. The work of Geoffrey Shepherd, Fred Beard and Gerald Engelman at Minnesota laid down the fundamental bases. Now the industry has more or less recognized the present standards although they do not accord with the former industry practice. Admittedly, much more remains to be done.

In other cases, ease of processing or handling through machines becomes a limiting factor in establishing quality standards. Industry's desire to mechanize handling and processing should be respected but may not be at the expense of quality deterioration. Some industry groups are concerned with loss of operational efficiency. Possibly a redesign of equipment and alternative techniques may be needed. Some mechanics on the other hand contribute to quality improvement.

Industry groups will likely accept standards that have a fundamental basis in their development. As methodology in objective and subjective measurement improves, more progress can be made in quality standards. Adaptation of standards to technological developments in production and processing should be made continually and will likely result in increased industry acceptance. I suspect that many are groping also for a "quality" standard.

4. Quality Standards and the Boundary Problem.

Characteristics of most agricultural products suggest that the factors that make up quality vary along a continuous function. Consequently the cut-off point along a continuum may not be easy to establish. In case of wholesaler or processor grades, operational characteristics in the industry may assist in establishing the cut-off points among several quality standards. In the case of consumer grades these points will likely be difficult to establish. In any case there may be a bit of arbitrariness in establishing boundaries.

5. The Number of Grades of a Product.

The number of grades into which a product should be subdivided is a most difficult question. Part of the problem depends on the ease with which meaningful boundaries can be established. Again, in the case of wholesale grades, we may have to account for production and processing characteristics of the product. In the case of consumer grades, more reliance will have to be placed on discovery of preference functions. Criteria based on "real preferences may be difficult to obtain. Conceptually a number of different cases can be postulated. For example, a case of one limit, that of universal differences (no preferences) among all consumers, of course, would be represented by a straight line.3/ Then, depending on the production possibilities and the shape of the transformation curve, satisfactions can be maximal where the marginal rate of resource substitution equals the marginal rate of production substitution. That is, one A grade of the commodity then would be produced and at minimum costs. A more realistic and complicated case would be that of multi-model preferences and while difficult to obtain empirically should be related to development of grade standards in accordance with the marginal principles. In this case, there are presumed important groups of consumers,

3/ Rhodes, V. J. and Keihl, E. R., "On Consumer Grades of Foods," Journal of Farm Economics, Vol. 38, No. I, February, 1956.

each having a determinable set of preferences such as those having preferences, for example, for prime grade steaks as contrasted to those preferring a grade of carcass producing more lean.

The matter of number of grades has another aspect of interest, that of the impact on total revenue. It may be practically impossible to discover the necessary elasticities for each grade to determine whether or not it should be desirable from the standpoint of maximizing aggregate product revenue to have one, two or three grades. The implications of these aspects are far reaching as among producers and especially among different production areas, each producing predominantly one grade.

Rank ordering of names, at the consumer level, presumably distort satisfactions. It is difficult to develop neutral quality grade names and probably even more difficult to maintain their neutrality. The problem of number of grades and rank ordered terms have implications for those concerned with welfare aspects for the different elements in society.

Another related question is one concerned with the matter of market agreements of producer groups and the difficulty of obtaining objectivity in quality standards where commodities are produced under market agreements.

6. Strategy of Research in This Area.

It would seem that in view of the fact that quality standards, their development and maintenance are complex in nature and in economic significance that an over-all research strategy is needed. The skills of the geneticists, biologists, home economists, food technologists, engineers, production men, psychologists, physiologists and economists need to be brought to bear on the problems. It may be that a general research strategy for the guidance of the diverse skills needed may lead to more productive use of them. It is possible that a strategy might suggest more clearly the gaps in the work, suggest places where more resources are needed and where more integrated efforts on methodology are needed. There seems to be a logical order and sequence in attacking empirically a problem. The following outline for a research strategy is to be considered suggestive.

These steps or guides might follow this pattern in the case of consumer quality standards:

1. Discovery of quality factors and the composite of quality factors that have meaning to consumers. This step should recognize the importance of the large differing preference groups and no preference groups. Recognition of the importance of product variation is crucial complementary aspect. The goal in this step is to obtain major areas of product homogeneity on the product surface and to discover important preference groups in terms of areas of product homogeneity.

2. Discovery of objective and subjective measures that will predict that bundle of factors important in predicting product homogeneity areas. Each product homogeneity area is defined in terms of important preference groups.

3. Formulation and development of quality standards. The previous steps form the foundation on which formulation should be based.

4. Consideration of the technical and biological requirements and those which are attainable in practice for the maintenance of quality in accordance with adopted quality standards. Any technological advance in techniques, in measurement, needs to be recognized and the impact may call for adjustment in step three. (Insects, insecticides, chemical additives, mechanical procedures, etc.)

5. Consideration of the impact of quality standards on producer, processor, and handler costs in relation to consumer preferences and acceptances; i.e., equating marginal resource substitution to marginal product substitution and satisfaction - in other words, the validation of quality standards in the broadest sense.

These are the conceptual steps. A similar strategy can be developed for work in wholesale grades. It is recognized that each step involves an integration of disciplines, of discovery of gaps within each. Maybe we need to think in terms of an over-all strategy group by commodities. In a limited way, such a group has been organized in the red meats field. Although this group, composed of representatives in meats, in food technology, home economists, and agricultural economists from several colleges and various U. S. Department of Agriculture agencies, has met informally for five years no attempt has been made to set down a strategy. I will say that this group has been very useful in avoidance of unnecessary duplication, of discovering gaps, and in giving direction to our joint efforts. The above is merely suggestive as to possibilities of integration among States and various agencies. I believe that a strategy of some sort can be formulated, built up in focusing attention to the sequential steps.

In conclusion, I believe that despite the fact that work with biological products is difficult we can make greater progress in adopting a conceptual framework for research strategy. This idea has been popularly called operations research approach in some quarters. We would do well to look into this general approach where research terms are harnessed to work on the problem. These teams may or may not be located at the same college, or agency, but work could be integrated among several colleges and Federal agencies. The problem of quality standards exists in a multi-dimensional environment, and therefore, progress in solution calls for a multi-disciplinary attack. Ahead of us is a long and tedious road. The problem of integration may never be

satisfactorily solved. Recognition of these aspects is evident in our group discussions. The values derived by the members of our joint discussions will not be fully reflected in the published reports.

Secretary's Report

An attempt was made at the first session to define quality. This proved rather difficult because of the varied disciplines represented in the discussion group, it being comprised of home economists, economists, marketing specialists, grade and standards experts, horticulturists, plant pathologists, processing specialists, poultry specialists and human nutritionists. After considerable discussion the definition adopted by Work Group III at the Michigan State College Workshop in 1951 was accepted. It was:

> "Quality is the combination of attributes of a product that have significance in determining the degree of acceptability of the product to a user."

At a later session other definitions were offered which broadened the Michigan State definition and it was decided to include them as expressing the concepts of varied segments of the group. The following one was developed by one of the "CORE" committees of the U. S. Department of Agriculture:

> "Quality is the characteristic or combination of characteristics of a product that have significance in determining the degree of acceptability, usefulness, and value of the product to the user - all those who make use of the product by direct consumption, trading, shipping, storage, or by using the product in processing, manufacturing or marketing."

This definition expressed the view that was continually emphasized by the group that the attributes of quality varied with the different users. For example, quality factors that would be important to the processor may not be important to the consumer of the raw product.

The third definition introduced the idea that attributes of quality that are important to potential use should be recognized. It is as follows:

> "Product quality refers to those attributes which are inherent in or can be developed in a commodity that determine that acceptance of the product to satisfy present or potential needs of users."

Several sessions were spent in reviewing the various aspects of the measurement, maintenance and improvement of quality in the light of research experience of members of the discussion group and the published literature. Because of the interests of the group, most of the discussion dealt with human foods and little attention was given to animal foods, fibers and other agricultural products.

Experience from studies on economics of quality in marketing indicated that the consumers' concept of quality was influenced to a large degree by the use they intended to make of the product and that such qualities were not always evident by appearance or correlated with price. An example of this is potatoes whose boiling or baking qualities, except for the Idaho baker, are seldom recognized by the average consumer. It was concluded that grades with meaning to the consumer would be useful and equally as important as grades for producers and sellers. Other factors influencing the economics of quality in marketing were price and budget limitations of the consumer.

Need was felt for better identification and measurement of quality. This was reflected in consumer preference studies and surveys which were felt to be limited in value by the small choice in grades available to the purchaser. The limited choice also affects acceptance studies, since the buyer may rate acceptability differently if offered a wider selection. It was considered important to have the price the same in making preference studies. Preference studies conducted 10 years ago were considered to have been based on panels that were too small. The use of larger panels and sampling in broader areas in recent years has corrected this weakness to some extent.

A need for more and better objective tests of quality for grading food was felt but it was recognized that, at least in the present state, they would not entirely replace the subjective or organoleptic tests. Simple objective tests that could be correlated with subjective tests would have the advantage of being less expensive, more uniform, and more rapid. Considerable progress has been made in the last 10 years in developing and refining objective tests but there is still a problem in calibration of the instruments and in developing standard methods of use that will insure uniform and comparable results when used by different workers. It was suggested that, in addition to the statistician, psychologists and physiologists may be helpful in developing objective and subjective tests that would more accurately measure quality factors that are most important to the consumer. It also was suggested that biological tests may be useful.

Little relation has been found between price and quality at the retail level. A better relation seems to exist between brands and quality. Further research in this field has limited value until quality can be better identified for the consumer by labeling or by education of the consumer to recognize the true attributes of quality.

Considerable progress has been made in formulation of grade standards, especially those for use at the wholesale and processor level. Some of these have already been related to consumer preferences. Formulation of grade standards is a service activity, but it is dependent on research by other agencies. It is important for those engaged in formulating grade standards to keep abreast of consumer studies and use them as a guide.

Studies on preventing and limiting quality losses have been directed mostly against spoilage. However, many of the means used to prevent spoilage, such as refrigeration, careful handling and packaging, also often preserve and improve quality in the marketing channels. Notable advances have been made in the last 10 years in the use of gas storages for apples to extend the time certain varieties retain good quality in storage. Use of film box liners to provide gas storage conditions for individual boxes of pears has resulted from research in the last 5 years. This method is already used for a large part of the crop in the Northwest.

Preservation of foods by antibiotics is being tested extensively and aureomycin has been approved for the preservation of poultry during the last year. Sodium ortho-phenylphenate is used extensively to prevent decay of citrus fruits, apples and pears during marketing. A number of sprout inhibitors have been developed that are very effective in controlling potato sprouting in storage.

Important advances have been made in refrigeration of food at all levels--wholesale, transit, retail display cases and in the home. Much more has become known about the specific refrigeration needs of various products, with resulting decreases in spoilage and improvement in quality.

Prepackaging has increased at both the shipping point and retailer level. Better designed packages, more intelligent use of the various kinds of films, and better understanding of the refrigeration and ventilation needs have corrected many problems encountered in early prepacking attempts. Proper packaging has reduced spoilage by reduced handling and giving better protection from physical damage.

Extensive studies on deterioration of frozen products under temperature conditions in storage, distribution and marketing have demonstrated that frozen foods do deteriorate under certain commercial handling practices. Special attention is being given to find suitable indices of deterioration in quality caused by unsatisfactory refrigeration.

The final sessions were spent in a discussion of the various questions about progress in the last 10 years raised by Dr. Trelogan in his speech on the opening day of the workshop.

It was felt that the discussions during the first sessions of the appraisal group indicated that considerable progress has been made in the last 10 years on the measurement, maintenance and improvement of quality of agricultural products in marketing channels. However, the research to date indicates that much more information needs to be obtained and that methods of research in this field need to be improved.

Because of the extensive literature resulting from the large amount of work being done in marketing and closely related fields there is need for more review articles and better indexing or cataloging of the literature.

Such services would keep research workers abreast of developments with the least interference with their research and would enable them to plan and conduct their research more effectively.

A need was felt for better compilation of data and clearer presentation of the results of the research so as to get more application of the findings. Although the desirability of technical publications was recognized, a need was felt for popular style articles directed to the users.

It appeared that the results of the research were being put to good use by private firms, regulatory and service agencies if they had a practical application and came to their attention. Cooperators in the tests had a tendency to make early use of the findings, because they were often familiar with the work and had early access to the results. More prompt publication and better dissemination probably speed the more widespread use of the research results. Extension workers could assist greatly in obtaining practical application. There was particular concern over whether or not the results of preference studies were called to the attention of producers and shippers so as to induce them to produce and ship products and qualities desired by the consumers.

A number of outstanding successes and notable failures in marketing research were discussed. Some of the outstanding successes were:

1. New and better quality of processed products as exemplified by increased stability of dehydrated potatoes which retain quality longer.

2. Improved refrigeration in the retail stores and home and determination of specific refrigeration needs of various commodities.

3. Development of improved chemical and other treatments to reduce spoilage and quality loss.

4. New applications of the gas storage principles on the individual box and bin scale.

5. Development and partial adoption of hog carcass grades.

6. Noticeable advances in preservation of poultry during merchandising.

7. Advances in measurement of color and flavor.

Some notable "failures" were:

1. Research on new lettuce containers was obsolete before complete because of change over to fiberboard cartons which was made possible by vacuum cooling.

2. Research on loading methods for watermelons and cantaloupes not adopted because of opposition by segments of the trade who were interested in damage claim advantages.

The word failures is placed in quotation marks because the above examples were actually successful research projects, but failed to be accepted by the trade for various reasons, some of which could not be avoided. Experience from these projects does emphasize the importance of thorough consideration of various factors that may make the results obsolete in the near future and to present the results in such a way as to forestall unjustified opposition to their acceptance.

There seemed to be no difficulty in directing the design and objectives of research to the problem of quality identification and preservation.

Advances in methods and techniques on quality factors and deterioration have been facilitated by the rapid advances in biochemistry and physics. There also have been improvements in survey methods, panel testing and statistical applications. Measurement of consumer factors has not advanced as much as desired.

The Agricultural Marketing Act of 1946 (Section 203) seems to provide adequately for work on quality measurement, maintenance and improvement. Research would be facilitated, however, if it provided more adequately for a catalog service on marketing information.

The Group felt that there were many aspects of their problem that have not been covered adequately. Information is particularly lacking in the amount of spoilage that occurs in retail stores and in the home and its specific causes. Such information would be valuable in planning future research.

In general the research seemed to be forward looking. The research being done on various quality aspects will furnish basic information that will be useful for many years ahead.

Basic research in the field of quality measurement, maintenance and improvement was considered to deal with composition as related to quality, factors related to spoilage and loss of quality and studies on consumer and marketing practices. It is also concerned with the development of methods and tests.

The Group felt that there is nothing to regret or apologize for in "art for art's sake" or "lilies or peacocks." These things nourish the spirit and lily bulbs and peacocks are edible and could provide food in case of necessity. As such, they may be more lasting and important than the biologists, economists and others of the Appraisal Group. There is much to be said for seeking facts no matter where they lead as long as they extend the horizons of knowledge or put light where there is darkness. Much basic research falls in the class of art for art's sake in the opinion of

some laymen. Pressures for applied research place serious limitations on time and personnel available for basic research that may yield information that would solve many practical problems.

On the final day, representatives of the State Department of Agriculture requested information on how to get research done on urgent research problems. After some discussion it was decided that it would be desirable to have a meeting of research, extension, and state department of agriculture workers within the various states to consider urgent problems that need immediate research. In cases where regular personnel are already engaged in research that would be harmed if interrupted it was suggested that private research agencies could be used to advantage.

Although the Appraisal Group represented many disciplines, all members took active part in the discussions and at the conclusion it was felt that all had benefited by the exchange of information and opinions.

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APPRAISAL GROUP V

MARKET DEVELOPMENT

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Other Members	Katharine Alderman, Home Maker, Minn. John T. Buck, Res., Va. Gustave Burmeister, Adm., FAS - staff Dorothy Dickins, Res., Miss. Philip B. Dwoskin, Res., AMS Gwynn Garnett, Adm., FAS Peter L. Henderson, Res., Va. Earl Houseman, Res., AMS R. B. How, Res., Ontario James F. Hudson, Graduate Student, Iowa Glen H. Mitchell, Res., Ohio Richard Phillips, Res., Iowa Joseph C. Purcell, Res., Ga. Paul Rowell, Serv., Ore. James D. Shaffer, Res., Mich. - staff W. Lawrence Shaw, Res., ARS, Calif. - staff R. B. Taylor, Adm., Ore. Wheat Commission Sam H. Thompson, Res., Iowa D. M. Thorpe, Res., Ext., Tenn.

Consultant's Report

Market development research as defined by our appraisal group includes as its objective all of that research designed "to assist in expanding the demand for agricultural products." Demand assumes that price has been involved in a transaction. Price assumes that a good has been sold. Selling normally implies that a private marketing agent has handled the good at a profit. By this too simple rationalization, we may easily arrive at the assumption that at least most market development research is in some way involved with the private agents in the marketing system. Thus, we arrive at the conclusion that appraisal, at least to some extent, should be in terms of

the use of research results by the agents in the system of getting our products from the farm to the consumer. Since we are dealing with the problems of expanding demand, this means those agents that are normally closest to the consumer or actually consumers themselves. Market development research then is primarily aimed at learning how to sell more product.

Why do we need to worry about sales efforts for our farm products?

First, we are faced with a consumer debt that is higher than at any time in our history--an increase in installment debt of about five billion dollars since this time last year to a level of total outstanding consumer debt of about 35 billion dollars. Payments on this debt are fixed expenses out of income that have to be met by consumers and are in competition with food for the total consumer's dollar. Consumers are spending a little over 25 percent of their income for food now, but food is about the only flexible area of expenditure--at least it is the largest area that has any flexibility. If we are going to maintain our present proportion of expenditure for food, we are going to have to do so in competition with housing, particularly so-called low cost housing, furniture, automobiles, TV sets, and the like. We are not going to be able to maintain this position without real competitive selling, using as strong selling methods as the vendors of other goods.

Second, we have all kinds of increases in expenditures for beverages--soft and otherwise--that are in direct competition with some of our farm products. These beverage manufacturers and distributors are doing a real job of selling their products. We are not going to be able to maintain our markets, much less expand them, unless we can sell as well as they can.

Third, farmers as a rule are involved in production, and in selling only at the first stage from the farm. The exception of course involves cooperative activities. There are some excellent examples such as Sunkist and the cranberry growers. But, in general, most of our products are bought by distributors or processors who handle a wide variety of products and handle our product only in the hope of gaining profit by its sale--which is as it should be. Even further, the retailer who is charged with the responsibility of finally delivering our products to the consumer also is selling such a variety of products as children's books, magazines, records, flowers, kitchen utensils, cosmetics, patent medicines, and in some instances standard items of clothing such as ladies' stockings and men's socks. Each of these items is stocked and pushed in some relation to the profit he makes from them or in relation to the demand that he has for them. He naturally pushes those products bearing the greatest chance for the largest profit. If we expect him to push our goods, we must in some measure work toward the end of the creation of the demand for our products.

Then to me the old question of the size of the consumer's stomach becomes somewhat academic. It becomes necessary for us to sell our products because nobody else will do it for us. It becomes a question of running pretty fast to stay where we are and working mighty hard if we are to be out in front.

How do we in research fit into this picture? We find ourselves, whether in the employ of farm groups, or State or Federal research organizations, engaged in research aimed toward the end of selling to the final consumer. What are some of the problems involved in getting into this kind of research? We may be providing information which may be used in selling Florida oranges in competition with Washington apples, for example. Frankly, I don't look with disfavor on this. We are selling in a competitive situation where we may have to assist each product group. The fact of competitive products must be recognized, but the competition for the market should not necessairly be a limiting factor in our research.

Our research in the past as far as State and Federal research is concerned has been limited largely to providing information for groups who are engaged in selling activities. The Department has worked with the National Cotton Council, the whole citrus industry, the American Dairy Association, and a number of others. Max Brunk has worked with the New York apple group and the dairy and poultry interests. A number of other examples could be cited, but these have all been aimed at helping particular groups sell more of their products, and the competitive chips have fallen where they may.

It is hard to be general in treating the appraisal of research in this field. In the first place, we are dealing most of the time with the provision of information that helps management make decisions, and this is somewhat of a sausage-grinder process where it is impossible to tell from what area of the hog the final product came. Then, in addition, there are side benefits from research which we may not expect at times. For example, the other day I found a large dairy organization using a study of grapefruit sections done in the Department last year to obtain ideas on research methodology.

A few general comments about market development research: In the rush to get projects under way and to present results to administrators and Congress, we have neglected some basic areas. Our methodology has not been improved as rapidly as it should. The techniques applied in many studies are not adequate. The one basic need is methodological research. It does not necessarily have to be labeled methodology but can be aimed in that direction. This is an area of market research which requires imagination to a high degree. There must be harebrained ideas floating around that should be tested--just to see whether they might work--even though the chance of success may not be so good as if proven techniques are used.

We are working with problems that have plagued industry for some time. In many instances now we are borrowing ideas from industrial organizations. Should we not consult with industry leaders in market development research to see if we can apply some of this experience? I mean, for example, research people in marketing and processing organizations plus private research organizations. There is a lot of good research going on in industry along with some bad, just as we can find good and bad research here.

I have taken liberties with some of the conclusions of the appraisal group in order to present some additional ideas. For this reason, the

following observations are entirely my responsibility.

In discussing the value and use of market development research, I would like to put it in four categories:

(1) Market potential and new products.

(2) Consumer preference, acceptance, and buying behavior.

(3) Foreign market development (which I will not comment on).

(4) Promotion and merchandising.

I will comment on each of these separately.

1. Market potential and new products.

This area covers two groups of studies: (a) industry potential studies such as "market potential for fats and oils in drying-oil uses"; and (b) market testing and market potential for new or improved individual products.

The industry potential studies, of which there have been only a few, have been quite useful in appraising alternative markets. For example, in 1951 the market potential for vegetable proteins study showed that fiber development was a poor risk. Industry acted accordingly as did the Department's researchers and directed funds into other endeavors. The drying-oil study indicated to industry some of the problems involved in competition from latex paints and petroleum derivatives. Research is under way, I understand, to make drying oils from agricultural sources fill the industry's needs. This research could have been done by industry, but the profit from latex paint may be just as great or greater than in oil base. We have to show the manufacturers that oil can do the job and still make the profit.

There are some problems in this field of activity. These studies of necessity require the combined efforts of physical and social scientists. The above studies were not done in the Department but were done under contract, partly because it was the only way to get scientists in the various fields together. They were hired together under a smaller roof. This is improving, and I understand some studies are under way with the group approach.

In addition there are some notable examples in the colleges where cross-discipline approaches are successful. We, economists, have been somewhat at fault in this lack of cooperation. We as economists have at times been prone to criticize others for not accepting our findings and at times have even tried to appraise problems from the economic standpoint of course--for the physical scientists to work on.

Market testing - There have been some outstanding examples of research in this area. The market test of frozen grapefruit sections in Erie, Pennsylvania, is an example. Another is the work in Hawaii. The results of

the grapefruit section study were put directly into use by industry.

The problems in this area are primarily brought about by a lack of experience. The combination of retail audit and consumer interviewing techniques has been successful, but the result is a costly approach. Cheaper methods of testing would need to provide information on proportion of consumer buying, repeat purchasing, and degree of substitution for existing products.

2. Consumer preference, acceptance, and buying behavior.

There has probably been more work done under this heading than in any other area of market development research. There is also a wide range from the best to the worst. In general, we have placed a multitude of sins under studies by this name, and some are probably still haunting us. The range of work extends from national probability sample studies made on a number of products using the best techniques to interviews of consumers testing papaya jam in Macy's Department Store.

It is impossible to evaluate this wide range of studies in a short time or even to appraise its use. There are numerous examples of good studies which have been used extensively in the industry. One of the best examples is the cotton series undertaken by the Department and used by the cotton trade and the National Cotton Council. These included consumer preferences for cotton goods of various sorts as well as industrial preferences in wire insulation, automobile fabrics, awnings, and the like. Similar use has been made of potato work carried on by the Maine Experiment Station. These are only examples.

If any general conclusions could be drawn, I would say that the studies have been of most value when the researchers worked closely with an industry group. In these instances there is much better understanding of problems on the part of the researchers, better understanding of limitations to use on the part of industry people, and better acceptance of the results. The question of how the results will be used has been answered before the research was undertaken.

4. Promotion and merchandising.

Merchandising research has been carried on in a number of the colleges and the Department. Most of this work has involved testing alternative methods and measuring consumer reaction in terms of sales. This is primarily applied research. The results, if favorable, are taken up quickly and used. We have been able to draw some conclusions as to why consumers react to certain practices the way they do. But, essentially we don't know the why of consumer reaction. We don't in most instances know who reacts to the various treatments.

Although it will undoubtedly be necessary to continue retail merchandising studies, and, I think this is desirable, we should aim in the direction of learning why people react the way they do.

In the field of promotion and advertising we have done less work. To be sure, we have provided market profile information to describe markets. We have made opinion and attitude studies to learn how best to approach the consumer with advertising and the trade with promotion. We have provided consumer purchase information to assist in market appraisal. We have also undertaken some important studies that indicate consumer use of products in terms of frequency, occasion of use, how used, and where consumed. This, though, is research for advertising and the resulting material has been used.

On the other hand, there has been considerable discussion of research on advertising. The Agricultural Policy Research Committee has recommended work on evaluating programs of this kind. The list of regional projects indicates real interest in this subject. I have entered into considerable discussion on such topics since I got here. There has been little work done in this area and almost none on non-brand approaches. We can make subjective appraisals from spotty and sketchy data, but there is no real research.

Here is a real challenge to you, to enter a new field, where little knowledge exists, and from an unbiased viewpoint study results obtained. You have been asked questions about participation, and you should be able to provide information to assist in making decisions. Your county agents are undoubtedly calling on you for assistance.

We have undoubtedly fallen down in keeping you informed about our programs and how we view results. That we should correct.

One word of caution. If you do go into studies of advertising, be sure that the approaches used are based on the best research results available; in addition, work on an experimental program where comparative results can be appraised. There are many factors involved that defy quantification.

I am sure you will find cooperation from industry and the advertising agencies if you can give them reasonable assurance of objectivity.

A brief note on consumer panels. The consumer purchase panel is a technique of research just as is the personal interview, store audit, and others. The panel approach provides masses of data on purchases that can readily be related to family income and composition. It may be used to describe markets, note changes in volume of purchase, rate of purchase, or proportion of families buying, all related to family characteristics. The place of purchase may be specified. The resulting data may be related to merchandising or advertising effort, changes in income, or other external factors. In instances where all food purchases are obtained diet composition may be studied. Interrelationships over time in consumption of various foods may be analyzed.

The approach is costly. The amount of data is tremendous and the problems of handling are of considerable magnitude. There are biases in any approach to data collection and this is no exception. Panel maintenance and stability are problems.

Among the best existing panels are the ones operated by Michigan State, the Chicago Tribune, and the Market Research Corporation of America. There are many others of various kinds operated by newspapers and marketing firms in various sections of the country.

Some needs for future research in the market development field.

The food industry has little concept of its institutional market. For example, we think about 30 percent of our butter goes into the institutional trade. We make estimates on other products. They are just estimates, though. What is the magnitude of the market? How well are we servicing it in terms of package size, food preparation, and delivery? Where do various kinds of institutions make their purchases? Many smaller and medium sized restaurants make a large number of purchases through retail stores. This is an increasing market that accounts for from 15 to 25 percent of our total food consumption.

We need to learn much more about the relationships between profit, turnover, customer traffic, and sales volume on our products. These need to be related to location of displays and space allocation. In the dairy line, for example, we have two relatively high profit items from the viewpoint of the store manager. These are ice cream and cheese. Ice cream is normally in a special case and up front, close to the checkout. Impulse purchase can be effective. On the other hand, cheese is back in the rear corner of the store with traffic items such as milk and does not get the benefit of its high impulse rate. What is the optimum allocation of space in the dairy case under certain store conditions? What functions are related to dairy case profit? These examples apply just as well to fresh produce, frozen foods, and meats. The retail trade will listen if we can provide them some answers.

The social psychologist has a lot to offer in expanding our knowledge of the consumer and his reactions. These people can assist us in learning more about the consumer's decision-making process. In addition, an understanding of the social values attached to our products will go a long way toward indicating how we may best approach the expansion of consumption. The use of the social psychologist's techniques in an expanded pretest of attitude and opinion studies can prevent the loss of large parts of our interviews. In too many instances we learn too late that a certain direction of questioning is not productive, that costly time in the interview is lost.

Our whole concept of the use of foods needs to be reevaluated. We know little of the frequency of use, occasion of use, method of preparation, and how served or the interrelationships between the use of various foods. We need to learn more about consumer menus, methods of meal planning, and their concept of nutritional needs.

A few more observations: We have many problems of communication. We need to learn more of the language of management. Just a small example--A few years ago we went to Florida to talk to people in the citrus industry about consumer purchase information. The consumer normally thinks of oranges in terms of dozens, so we measured consumer purchases in these units. I will

never forget that first meeting with the industry. The audience was so busy trying to convert everything we said from dozens to boxes that I don't think that we got very much, if anything, across. We very quickly learned, and then the next time we went down there presented everything in terms of boxes. Then we threw up our hands in despair when we found that the California industry thought in terms of carlots. This is a simple thing, but if we can learn the lingo, we can get a foot in the door, get cooperation, and have a better chance of getting our results used.

Our planning of research leaves something to be desired. There are too many cases of the researchers dreaming up a problem, conducting the research, and then wondering why the results are not used. By this, I don't mean that the researcher should sit by and wait for someone to come along with a problem. To be truly effective the market research has to be done before the market decision has to be made. This means that the problems have to be recognized by the market researcher before management sees them. The research responsibility then is to know what is going on and what is happening. This can only be done by real cooperation with marketing groups. Statements in published reports that the data should be useful to industry, extension groups, and the like could better be in the project statement. At times these statements are made without having contacted these groups before the study is finished.

In industry, the market research function has a habit of being set off to the side in a separate organization, and this develops into somewhat of an ivory tower. The researchers comment that management does not call on them to help in making decisions when they have all of this useful knowledge at their fingertips. Then they become critical of management and get relegated to positions of overgrown stat clerks. Research is a tool of management and has to be integrated with management to be of most value. Management has to be carried along in development stages of research if we are to act on findings. There are similar problems in your dealing with industry groups in working on research problems. The closer you can stay to management to learn their problems and for them to learn yours, the more likely you will be to have your results used and have your recommendations accepted.

From our 10 years' experience we can point to outstanding examples of research in the field of market development. It has grown from nothing to a large area since the Research and Marketing Act was passed. We can also see some failures. We have learned from these failures in many instances so that they are not total losses. We have developed interesting and useful methodology. No problem is exactly like the other, so new techniques are required at every turn. We still have a long way to go in developing ways of getting exactly what we need to know. This, however, is the challenge. The next 10 years' success in market development research depends on how well we accept this challenge.

Secretary's Report

Market development research is defined as research to assist in expanding demand for agricultural commodities. Included in this general field are the following areas:

Promotion and merchandising.

Potential demands for new or improved products and services.

Product development and market testing.

Consumer preference, acceptance, and buying behaviour.

Foreign market development.

Domestic distribution programs.

1. Promotion and merchandising.

Promotion is defined to include advertising, public relations activity, related product activity (tie-in advertising), and dealer service activity.

Merchandising is defined to include point-of-sale activity such as location, display, packaging, and pricing of products at the retail level.

The principal discussion of the group revolved around the question of advertising. Research is essentially of two types: one, to provide data to assist industry groups in developing effective advertising programs; and, two, to aid in evaluation of the effectiveness of particular advertising programs.

Data that may be of direct assistance in the planning of advertising programs would include the following:

a. Market profiles based on consumer purchase and expenditure surveys.

b. Results from household and industrial consumer use, attitude, and opinion surveys.

c. Results from attitude and opinion surveys directed to retailers and wholesalers, and use and opinion surveys among institutions.

d. Sales measurement and analysis.

In general, a number of competent studies have been conducted by State and Federal agencies in this field in addition to a large amount of work by private agencies. Results of such research are being increasingly well received by industry groups, including agricultural producer groups interested in promoting the sale of particular farm products. It is anticipated that there will be an expanding demand for this type of research resulting from increased activity in promotion by agricultural producer groups.

Evaluation of the effectiveness of particular advertising programs, on the other hand, has been virtually untouched as an area of research by agricultural experiment stations and the USDA. Work conducted by advertising agencies has been limited chiefly to media evaluations and tests of consumer remembrance of particular slogans and messages. It is realized that evaluation of the effectiveness of promotional programs is a hazardous and difficult area of research; but in view of the increased attention by agricultural producer groups to promotion, there is need for such evaluation for publication by public and other reputable research agencies. Generally speaking, agricultural producer groups are not in a position to conduct extensive research along these lines themselves. Yet it appears that analysis of the benefits in relation to costs for producer-sponsored promotional programs is desirable as a guide to producer groups in making investments in such projects. Trends in product use may be rising or falling; in analyzing benefits care must be exercised to distinguish between these two situations in assessing the impact of promotion on demand.

Recent developments in the field of merchandising research have shown considerable promise. Trade awareness and acceptance of the possibilities arising from this type of research is increasing. A number of effective controlled experiments in retail stores have been completed, covering such subjects as packaging (type of material, package labeling and design, multiple sizes or weights), pricing per unit and multiple unit, method of display, etc. The participation of agricultural economists is relatively new in this field. Further work should be done to explore the full potentials of research directed toward more effective merchandising of farm products at the retail level. In most instances reasons for consumer acceptance of new merchandising practices are not given explicitly. This is a possible weakness of the retail type of experiment. Usually, however, reasons for preference for one practice over others are inferentially apparent.

2. Potential demands for new or improved products and services.

Basically, the objective of this area of marketing research is to expand the demand for agricultural commodities by pointing out areas of economic needs and opportunities for new or improved products, and by market testing of new or improved products to accelerate commercial acceptance of them. The Capehart bill, if enacted, would require increased attention to this area of research, particularly with regard to new industrial uses of farm products.

Marketing research relating to new or improved products falls essentially into two categories: (1) the economic evaluation of areas where physical-science research to develop new or improved products might have a high potential for success, considering practical economic and social limitations; and (2) the market testing of new or improved products to determine commercial feasibility after the product has been developed in the laboratory. A considerable amount of this work is being done by large food processors and distributors, where private patents usually are involved, but the opportunities for this type of research in the interest of agricultural producer groups are not fully covered by private industry studies. Moreover, the results of most of

such studies are not usually reported to the public.

Methods currently in use for obtaining data for market analysis related to the potential demand for new or improved products include the following: (a) household use, opinion, and attitude surveys; (b) family consumption and expenditure surveys; (c) industrial use and opinion surveys; (d) product tests; (e) market tests; and (f) continuous consumer panel reports of purchases of food and other agricultural products. A major problem with respect to data collection is to assure adequate reliability at least cost. As an outgrowth of this, efforts are being made to find ways of obtaining comparable data with simpler and less costly methods. This involves methodological research relating to data collection.

In the area of analysis of the data much improvement is needed, particularly with respect to the effects of product innovations on the position and shape of the demand curve for the product considered and for related products.

The literature in this field is not extensive. Two recent studies may be cited as examples of the two categories mentioned above. (1) The Market Potential for Fats and Oils in Drying-Oil Uses (MRR 90, USDA, 1955) explores areas where physical-science research might prove beneficial in sustaining markets in the face of severe competition from non-agricultural raw materials, or of expanding markets for drying oils. (2) Frozen Passion Fruit Juice, An Appraisal of the Mainland Market Potential (Hawaii Agric. Expt. Sta., Agric. Econ. Report 25, 1955) presents results of a market test for this product in a selected mainland market.

Both types of studies have served to point the way to solutions of problems important to agriculture. In the case of drying oils, for example, it was determined that much greater emphasis must be given to fundamental research into the chemical structure and properties of these oils if they are to compete successfully with synthetic materials. In the case of frozen passion fruit juice an estimate of the total mainland market potential was derived which has a direct bearing on the extent to which Hawaiian agriculture may be diversified. Other studies of this nature have had similar applications.

Additional marketing research work relating to new or improved products is vital to the success of physical-science research efforts directed toward expanded utilization of farm products. The following indicate some of the areas in which such research could be profitable:

a. To meet competition from non-agricultural raw materials in manufacture.

b. To increase storability and thus provide for year-round availability of perishable agricultural products.

c. To increase convenience to the homemaker.

d. To achieve greater product diversification.

e. To explore the market for fundamentally new products to expand levels of living.

In this whole area of work a team approach is essential. Different techniques frequently are involved in determining potential demands for new or improved products. The skills of sampling statisticians, marketing economists, and social psychologists are utilized in the planning and execution of the research. Physical science aspects also are involved, and the technical advice of chemists, nutritionists, and food technologists should be employed, particularly in the planning of projects.

3. Product development and market testing.

Product innovation includes the development of new products and modifications of existing products. The role of the economist in assisting the physical-scientist in developmental research includes not only the determination of market potentials but also the delineation of limiting factors. Limiting factors would include:

a. Adequacy and cost of raw material supply, present and future.

b. Costs of processing including capital investment required in relation to potential sales volume.

c. Costs of sales promotion.

d. Price of finished product in relation to prices of competing products.

Such factors are of prime importance to private firms in their decisions to put the new or improved product into commercial production.

An important phase in determining commercial feasibility is the testing of the new or improved product for consumer acceptance. This frequently is accomplished in two steps: (1) by product testing, and (2) by market testing.

Product testing is essentially a process of trying the product out on a representative group of consumers to obtain their candid reactions as to its good and bad qualities. If undesirable qualities are evident, further development research is indicated. After a reasonable degree of acceptability is achieved, the product may be market tested under commercial conditions wherein consumers indicate their acceptance by actual purchases.

Market tests as conducted by the U. S. Department of Agriculture and some of the experiment stations usually involve retail store audits to measure sales of the product and of closely related products, and household consumer surveys following a period of retail-store exposure to the new product to ascertain awareness of the product, percentage of families buying, percentage of repeat purchases, ways in which the product is used in the home, and satisfactions and dissatisfactions with the product.

Examples of recent activities in this area are found in U. S. Department of Agriculture studies relating to product testing of dehydrofrozen peas in restaurant use in Milwaukee, and market testing of frozen grapefruit segments in Erie, Pennsylvania, and of dehydrated potato flakes in Binghamton, New York.

The possibilities for effective research in this field are excellent if for no other reason than the importance of innovation to the continued growth of our economy and to the welfare of agriculture. Studies made to date indicate that the results of market testing have distinct value to physical scientists and to processing industries and through them to farm producers.

There are, however, several problems to be considered in further development of this field of research:

a. A greater backlog of experience in product and market testing is needed before a full appraisal can be made of the effectiveness of such research.

b. There is need for closer liaison between the market and physical research agencies and private industry.

c. Greater emphasis on studies dealing with the potential demand for new products is needed to assist the physical science agencies in the selection and orientation of research programs.

d. Possible new and less expensive ways of product and market testing should be explored.

e. The possibility of projecting results of studies in one or two markets to a regional or national basis should be investigated.

f. The problem of maintaining long-time cooperative arrangements with retail establishments is extremely difficult, and alternative methods such as the use of a continuous consumer panel should be considered.

g. A need exists to determine the standards to be used in the selection of a market test city or cities.

h. Further study needs to be given to the length of time of tests necessary to establish purchase patterns including possible followup surveys.

4. Consumer preference, acceptance, and buying behavior.

The over-all objective is to ascertain consumer attitudes toward specific agricultural products in the forms in which they are available, their uses of such products and satisfactions and dissatisfactions with them, their attitudes toward foods in relation to nutritional knowledge, and other factors influencing consumers in their buying behavior.

The following types of studies are included in this general area of research: (a) consumer use and preference surveys, (b) controlled retail-store experiments, and (c) consumption and purchase surveys using the recall method and the method of continuous consumer panel reporting.

Such studies are useful in several ways. Basically, they serve to extend the field of knowledge relative to economic, social, and psychological behavior. More immediate applications are found in the development of improved promotional and merchandising programs, and in the discovery of quality factors that may have a direct bearing in adjustments in production and processing practices. In addition, these studies serve as a base for consumer-education programs, and as a measure of nutritional status of the populations studied.

In contrast to other areas of market development research, a relatively large amount of work has been done in the field of consumer preference, both by State experiment Stations and by the U. S. Department of Agriculture. A series of studies relative to use of and attitudes toward natural and synthetic fibers by household and industrial consumers was initiated by the U. S. Department of Agriculture several years ago and is continuing. Several studies have been done relating to household consumer preferences for citrus products, including work on quality factors. A number of other studies have been made both by the U. S. Department of Agriculture and the State experiment stations dealing with a wide variety of products, with package types and labeling, and with specific services. A few studies have been concerned with methodological problems.

Consumer acceptance studies, involving controlled experiments, have been less numerous. A series of studies relating to consumer acceptance of varying qualities of beef is now nearing completion in the Western States. Among other subjects studied have been consumer demand for ripeness of peaches, fatness of pork, waxed and colored potatoes, and eggs of various qualities.

Consumer purchase (and consumption) surveys have been made at irregular intervals, with most of this work being done by the U. S. Department of Agriculture. National surveys including both rural and urban families were made in 1936 by the Department and the Bureau of Labor Statistics, and in 1942 and 1955 by the Department. An urban study only was made by the Department in 1948. The Bureau of Labor Statistics made a national survey covering family expenditures for all commodities and services in 1950 and 1951, the results of which are now being published by the University of Pennsylvania under a foundation grant. In addition to these general studies with wide geographic coverage, several commodity-oriented surveys have been made.

Another way of obtaining consumer purchase data is through the use of continuous reporting panels of consumers, such as the national panel of 5,800 families reporting weekly to the Market Research Corporation of America, the Chicago panel of approximately 700 families, and the Lansing, Michigan, panel of about 275 families.

Retail store audits have been used to measure the rate of product flow into consumption. But data on characteristics of buying families are lacking, and the method is relatively expensive if wide-scale commodity or geographic coverage is to be achieved.

Despite the considerable amount of work done in this area of market development research, a great deal more might be done profitably. Demand for information is increasing as possible applications become better known. The work as a whole has been reasonably adequate, although certain shortcomings in method and scope are apparent.

Sampling techniques are well developed.

Questionnaire design presents problems, particularly where research workers are called upon to undertake such work without having had adequate experience in it. The need for an interdisciplinary approach to this problem is evident. Assistance from home economists and production scientists, as well as from social psychologists, should be sought in every instance. The sociologist or psychologist, for example, can be extremely helpful not only in question wording but in developing new concepts and techniques, such as the use of projective techniques or of attitude scales.

The success of any survey hinges, in the final analysis, on the thoroughness and care with which the field work is done. This requires skillful supervision and careful training of interviewers and enumerators.

In many instances, consultation with scientists of other disciplines will assist in the interpretation of survey results.

One of the main difficulties in the operation of controlled experiments in retail stores to determine consumer acceptance, is to obtain management cooperation over a sufficient period of time to permit measurement of repeat purchases.

With regard to scope, it is suggested that a more systematic approach, involving all interested research agencies, be employed in studies of specific areas of research, such as studies of consumer preferences for quality factors in relation to grade standards and of consumer acceptance in the market place of products of various qualities. Another area where a systematic approach might be employed is in the study of food habits and attitudes toward food and nutrition.

It was emphasized in the discussion that consultation with affected industry groups is essential in determining real problems for solution by research and also in facilitating acceptance of the research results by industry.

The area of "motivation research" was discussed briefly. The techniques of this method of research and the validity of its results are not sufficiently well established to permit adequate appraisal in the agricultural marketing field.

5. Foreign market development

The importance of foreign markets to the welfare of U. S. agriculture was pointed out. The product of about 1 acre in 10 is now exported. Roughly, one-half the tallow produced is exported; one-third the cotton, wheat, rice, and lard; one-fourth the tobacco, soybeans, and grain sorghums; and one-fifth the feed grains.

The availability of food in world markets is at an all-time high. Nevertheless, several factors are favorable to large exports of U. S. farm products. These are:

a. International trade in farm products is expanding.

b. World living standards are rising, with a resultant strong demand for products to improve diets including animal products, fats and oils, animal feeds, fruits, and processed foods.

c. Most foreign countries have dollars to increase food imports somewhat.

d. Prices of farm products in almost all food importing countries are higher than the landed costs of U. S. products.

e. Many desirable processed commodities are not produced in foreign countries.

Other factors serve to limit U. S. exports. These are:

a. Protectionism.

b. Bilateralism to promote exports.

c. Priority allocation of foreign exchange for capital goods.

d. Quarantine and sanitary regulations.

e. Inadequate merchandising organization for some U. S. products.

f. Failure to introduce some potentially marketable products.

g. Failure to develop foreign marketing machinery and procedures including methods of financing, notably for milk, poultry, and breeding animals.

h. Food habits in some foreign countries preclude the use of some U. S. products, e. g., lard in Italy where olive and other vegetable oils are predominantly used.

i. U. S. standards and grades are not always acceptable in foreign markets.

j. Rising ocean freight costs are adversely affecting the competitive position of U. S. farm products in foreign markets.

k. In many instances facilities in foreign markets are inadequate, i.e., refrigeration, storage, processing.

Despite these limitations, most U. S. farm products are competitive with farm products produced in importing countries. They are also competitive with products produced in other exporting countries, except for wheat, cotton, rice, dairy products, peanuts, and primal cuts of beef and pork. Because of the hardness of the dollar, the U. S. is a "residual supplier" of imports in all countries. Thus a decrease in foreign demand for farm products falls with unusual severity on such U. S. export commodities as cotton. On the other hand, an expanding demand places the U. S. in an unusually favorable position with respect to exports of oils, feeds, and most animal products. Certain of our products are joint products which are not completely acceptable in the U. S. market, and therefore must be exported, e.g., lard, tallow, and edible offal. Other U. S. products with a technological addition have a competitive advantage in foreign markets, e.g., recombined milk, powdered butter, hydro-frozen meat, dried eggs, crystallized fruit and vegetable juices, cake mixes, and sterile products.

The Foreign Agricultural Service of the U. S. Department of Agriculture maintains 86 attaches in 56 foreign posts, conducts a certain amount of foreign trade policy analysis, is engaged in foreign trade promotion and in certain government foreign trade programs, and conducts studies of foreign competition and demand for specific farm products. Nevertheless, the magnitude of the foreign agricultural trade problem is so great that much additional study is required. Areas for more penetrating analysis are as follows:

a. Evaluation of CCC administrative pricing policies on exports of corn, sorghums, cotton, dairy products, wheat. Small grains are now exported at the expense of corn, for example. Is this an uneconomic operation?

b. Evaluations of the effect of Government export programs under Public Law 480, the barter program, voluntary relief program. Are these programs needed? Will the machinery set up make it impossible to withdraw? Are we getting anywhere, impairing markets, or gaining friends?

c. Evaluations of government sponsored market development projects, such as participation in trade fairs, demonstration centers, cooperative work with industry groups for promotion, and foreign market research. Are these worth the expenditures?

d. Evaluation of the effect of U. S. resource contributions to the economic development of foreign countries on consumption of farm products.

e. Evaluation of total demand prospects for a few years ahead for major export commodities.

f. Evaluations of country situations. What is of significance to U. S. export commodities? How can they be introduced and sustained, e.g., recombined milk where processing facilities are now lacking?

g. Evaluations of adequacy of foreign marketing procedures. For cotton and meats, for example, sales are made to primal buyers - brokers, wholesale importers - with no attempt to assist in selling to foreign consumers. Is this adequate to maximize exports?

6. Domestic distribution programs.

A brief discussion was held concerning domestic distribution programs for food products. These programs include the National School Lunch Program, the Special School Milk Program, direct distribution of CCC stocks through State and local welfare agencies, and the Plentiful Foods Program. In addition, the Congress has required USDA to make a report on a food stamp plan or similar program for distribution of future surplus production to needy persons so as to prevent the accumulation of commodities in the hands of the Commodity Credit Corporation.

Several of the State departments of education in 1954-55, with aid of Federal grants, made rather hurried studies of the effects of the Special School Milk Program on consumption of milk in schools. A few State experiment stations are now engaged in further studies of the program, and the USDA will shortly complete an intensive study of various factors affecting milk consumption in the St. Louis and Los Angeles public schools.

After 10 years of operation and general public acceptance, participation of children in the National School Lunch Program is estimated at only 30 percent. A study is in the initial stages in USDA to determine the factors associated with non-participation of schools and of school children in the program.

Results of the national food consumption survey conducted jointly by ARS and AMS in the spring of 1955 will be published in detail beginning in the fall of 1956. Many special studies will be possible using these data. One study will be concerned with the measurement of income elasticities of demand, at various income levels, for all major food products. Results of such studies will have value in delineating family areas where distribution programs might have most value, and where private company merchandising and promotional efforts would yield additional dividends.

The many aspects of distribution programs offer fruitful areas for further useful research.

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APPRAISAL GROUP VI

PUBLIC POLICIES AND PROGRAMS

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Consultant's Report

Our appraisal group limited its discussion of the broad topic assigned to it to policy and programs directly affecting marketing functions and processes. Even so, the group suggested a large number of specific problems on which research is needed. Needs fall into two categories: Policy research proper and contributory research.

Policy research proper directly applies to a problem that is being dealt with by public action or for which public action is considered. Analysis of probable consequences of alternative courses of action for dealing with a policy problem is one form of such research. Another is research on the

effectiveness of an actual program in achieving objectives that interested groups or society as a whole might have for it. Still another is operations research, where the merits of a program are not at issue but some problem arising in the conduct of the program needs solution.

Research on actual or alternative programs can seldom go all the way in reaching conclusions as to what should be done. Action can be scientifically judged only for its effectiveness in achieving particular ends; decision as to which ends are desirable almost always involves value judgments that the economist cannot make for society at large. But, informed by the results of policy research, individuals can decide for themselves what course should be followed; and the policy actually followed is determined through the political process.

Contributory research provides the materials needed for policy research proper. Descriptive research (channels of trade, margins, competitive situation), analysis of structural relations (price and income elasticities of demand and supply elasticities, etc.), development of new or improved methodologies, and collection of appropriate data are included. Most of the needed contributory research must be at hand when policy research is undertaken. The deficiencies of contributory research in limiting the success of policy research proper hardly can be over emphasized.

Review of research on marketing implications of general price support programs (one area within the field defined by the group) has been scattered and scanty. More success has been achieved in describing programs and in generalized reasoning about their likely consequences than in pinning down the results actually attributable to them and in evaluating these against various objectives. There have been few analyses of programs from the standpoint of marketing functions and processes, although such an approach should be useful.

In the area of market expansion programs, contributory research such as food consumption studies have been so directly useful that they deserve special mention. Some use has been made of the opportunity for experimental research in connection with the special school milk program. The extent to which programs have substituted donated food for food that would have been purchased anyway probably could be determined with some success, but opportunities to do such research have not been exploited.

Much research has been done relating to milk marketing orders. Its volume has been sufficient that much of it fits together in a program of research whose total value exceeds the sum of the parts. This is in contrast to some areas where an isolated study has little value for want of others to which it can be related. There may be danger of too much operations research on milk marketing orders at the expense of appraisal and of looking ahead at emerging problems. Except for some work at California, little research has been done on or for fruit and vegetable marketing agreements.

Regulatory programs affecting marketing also have been, in general, a neglected area. Transportation regulations probably have been most important and have received most attention. Some work has been done on health regulations for milk.

Two general comments remain. Too much research is not published where it will be generally available and widely useful. Many of the less elaborate but significant studies by the U. S. Department of Agriculture are interred in the files after an immediate administrative need has been met. Much milk marketing research is smothered in a mountain of hearings records. Finally, policy research touches on highly controversial areas. Researchers need reasonable administrative support and the exercise of their own good sense. A great deal depends on how this research is presented and explained to the public.

Secretary's Report

Research in these general areas inevitably involves what is generally described as "policy research," with its many varying interpretations. Many of the results of research in these areas have been as a byproduct of research efforts addressed to nonpolicy questions. A number of the strictly policy type of research projects in the areas have been made at the request of the Congress or other agencies of a State government. Frequently, this has meant that the research was of the "crash" variety and narrowed to the specific objective(s) designated by the requesting authority. In recent years, however, some regional projects have lead to research findings which cover the effects of programs relating to market prices and distribution. Some examples are the studies on potatoes, dry beans, tobacco, and the current North Central regional project on grains.

Compared with the vast amount of research needed relating to policy and programs, relatively little has been accomplished to date. A number of reasons for this paucity of research were advanced:

(1) From the end of World War II until after the Korean War, demand generally was strong relative to available supplies, and marketing problems arising from Government action were often minimized or their solutions were postponed. In the past 3 or 4 years the magnitude of problems has been increasing, and at the same time by virtue of authorization under the Agricultural Research and Marketing Act, greater resources have been made available.

(2) Generally the basic information, including supporting and contributory research, has been lacking. Along with this has been inadequately developed methods for conducting policy research.

(3) In maximizing the use of research resources, administrators frequently have guided research toward other areas.

(4) There is a feeling by some analysts that entrance of researchers into the policy field is hindered by the ever-present possibility that resources may be withdrawn in case of unfavorable recaption of results from any one project. Several persons in this work group expressed concern about this situation and its implications, while recognizing that the first three reasons probably were at least as important in explaining why more research has not been conducted in this field.

Important Points to Consider in Judging and in Planning Research Relating to Price and Distribution Effects of Public Policies and Programs

The following specific points were agreed upon as being important in appraising past research and for planning future research in the policy area:

(1) Relevance of the research to the marketing problem; that is, is the research problem significant? Some research projects have given results wide of the announced objective apparently because of inadequate definition of the problem initially.

(2) Has the research been designed on the assumption of a stationary or developing economy?

(3) Was the research project tailored to the amount of funds forthcoming; or due to the instability of staffing, were funds not made available on a sufficient scale?

(4) Some research projects seem to be concerned with description of past events as an end in itself. Descriptive research with implications for its future use is an important part of the contributory research and should be better supported.

(5) Was the research competently conducted so that any conclusions are justified?

(6) In deciding on methods to be employed, have research standards been adequate?

(7) Have the research results been related to other active or completed projects?

The following general comments were made:

(1) There is need for more complete data on producer's and consumer's response to price and other influences.

(2) In order that a researcher could more expeditiously survey the published results relating to his area, it would be well if he could have access to a central file--a file of both active and completed projects. This should cover not only those financed in whole or in part by Federal funds, but, also, to the fullest extent possible, those conducted under the authorization of State or private funds.

(3) To make policy research results more useful, many of them must be presented in a more readable manner; where possible illustrations should be presented so that users of the results can substitute later data in the formulas or tables and thereby bring the whole study's results up to date.

(4) There is a continuing need for work on principles and policy research methodology as well as on current problems.

Research on Public Policies Divided into Four Major Categories

In one way or another, activities of practically every Government agency have some effect on market prices and distribution of agricultural commodities. For the purposes of this work group's deliberations, research relating to distribution and pricing were divided into four major categories:

(1) Research relating to marketing implications of price maintenance types of farm programs.

(2) Research relating to regulation of markets and provisions of certain marketing services (for example, Commodity Exchange Authority, Interstate Commerce Commission, Packers and Stockyard Act of USDA, Food and Drug Regulations, etc.).

(3) Research concerning programs to expand markets, both domestic and foreign outlets.

(4) Research concerned with Federal and State marketing agreements and orders. At present these are confined to milk, fruits, and vegetables.

Under each of the above four points the appraisal group listed results of research projects which could be thought of at the time by members of the group. Unfortunately, very few of the reports were remembered with sufficient clarity that they can be criticized thoroughly and fairly. In general, however, the group seemed to agree that the research that had been completed was of reasonably good quality with surprisingly few exceptions. The shortcomings took the form of insufficient projects. Therefore, after listing the results which have become available in each of the four different fields, the group proceeded to list major projects in need of research attention in the near future. These are listed for each group after the results of research.

I. Research concerning market implications of price (or income) maintenance types of farm programs

A. A partial list of publications or other forms of research results

1. Storage of Pea Beans in Michigan and Indiana. Agricultural Marketing Service, May 1956.

2. A Study of Alternative Methods for Controlling Farm Milk Production and Supporting Prices to Farmers for Milk and Butterfat. 84th Congress, 1st Session, U. S. House Document No. 57, Washington, 1955.

3. A Study of Various Two-Price Systems of Price Support and Marketing Which Could be Made Applicable to Rice. 84th Congress, 1st Session, U. S. House Document No. 100, Washington, 1955.

4. (a) An Economic Analysis of the Impact of Government Programs on the Potato Industry of the United States. By Roger W. Gray, Vernon L. Sorenson, and Willard W. Cochrane. North Central Reg. Pub. No. 42, Technical Bulletin 211, June 1954.

(b) Price Supports and the Potato Industry. Same as above. North Central Reg. Pub. No. 43, Minn. Agr. Expt. Sta. Bull. 424, January 1954. (A popular summary of Tech. Bull. 211).

5. A Study of Alternative Methods for Controlling Marketing of Burley Tobacco. 84th Congress, 1st Session, U. S. Senate, Washington, November 1955.

6. Johnson, Glenn L. Burley Tobacco Control Programs--Their Over-All Effect on Production and Prices, 1933-50. Ky. Agr. Expt. Sta. Bull. 580, February 1952.

7. Hoos, Sidney. "Relations between Agricultural Price Policy and Marketing Research," Journal of Farm Economics. August 1951, pp. 357-68.

8. Working, Holbrook. "Price Supports and the Effectiveness of Hedging," Journal of Farm Economics, December 1953, pp. 811-18.

9. Reserve Levels for Storable Farm Products. A Study of Factors Relating to the Determination of Reserve Levels for Storable Farm Products. 82d Congress, 2d Session, U. S. Senate Document No. 130, Washington, 1952.

10. (a) Steele, Donald C. "Stocks and Stability," Journal of Farm Economics, August 1952, pp. 369-77.

(b) Stine, O. C. "The Impact of Commodity Credit Corporation Operations on Farm Market Prices and Market Channels," Journal of Farm Economics, November 1950, pp. 931-42.

11. Heisig, Carl P. "Long Range Prospects for Agriculture, Long Range Production Prospects and Problems," Journal of Farm Economics, December 1953, pp. 744-53.

B. Problems in need of attention

1. Problems of surplus market facilities. Is this a long-term problem?

a. Technical obsolescence as compared with excess capacity from shrinkage of markets

b. Alternative uses for excess facilities

c. Markets for new products, supplies of which are increased as a result of policy decisions

d. Population or employment problems as a result of policy decisions to increase or decrease emphasis on a commodity

2. Effect of price support on quality and type of production

a. Demand studies needed by quality, grade, or uses

b. Studies needed as to the effect of quality on the market

3. Effect of price support programs on relocation of industry and volume of certain products

4. Effect of price support programs on utilization of the commodity studied and of other commodities

5. Effects of Government programs on inventory policies of private firms, on production or processing

6. Effect of price support programs on futures markets

General comment.- In this general area, particularly, there appeared to have been made a large number of studies within the U. S. Department of Agriculture which were made for purposes of program administration but have not been distributed. Obviously, it is not possible to attempt to appraise these.

II. Research concerned with State and Federal marketing and orders

A. A partial list of publications or other forms of research results

1. Mehren, George L. Federal Marketing Programs for Fruits and Vegetables, Major Provisions of the Law, the Administration, Regulations and the Orders. Giannini Foundation of Agr. Econ., Mimeo Rpt. 100, Agr. Expt. Sta., Berkeley, Calif., Dec. 1949.

2. (a) Gray, Roger W., Sorenson, Vernon L., and Cochrane, Willard W. An Economic Analysis of the Impact of Government Programs on the Potato Industry of the United States. North Central Reg. Pub. No. 42, Tech. Bull. 211, June 1954.

   (b) Gray, R. W., Sorenson, V. L., and Cochrane, W. W. Price Supports and the Potato Industry. North Central Reg. Pub. No. 43, Minn. Agr. Expt. Sta. Bull. 424, January 1954. (A popular summary of Tech. Bull. 211.)

3. Questions and Answers on Federal Milk Marketing Orders. U. S. Dept. Agr., Agricultural Marketing Service, January 1954.

4. (a) Freemyer, Glenn W. History and Analysis of Milk Supply Problems in the St. Louis Market. U. S. Dept. Agr. Prod. & Mktg. Adm., 1950.

   (b) Harris, Edmond S., and Blum, Joel L. Federal Regulation of Milk Marketing in the Duluth-Superior Area. U. S. Dept. Agr. Prod. & Mktg. Adm., August 1951.

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8. (a) A Recommended Basis of Pricing Class I Milk in the Boston Market. A report by the Boston Milkshed Price Committee, 1947.

(b) Pricing Class II Milk in the Boston Market. A report by the Boston Class II Price Committee appointed by the Market Administrator, February 1951.

(c) Report of the New York Milkshed Price Committee. Report to the Market Administrator, New York Metropolitan Milk Mktg. Area, 1949.

(d) Report of the New York Milkshed Committee. Report to the U. S. Department of Agriculture and New York State Department of Agriculture and Markets, 1954.

(e) March, Robert W. The Pricing of Surplus Milk in the Chicago Market. U. S. Prod. & Mktg. Adm., 1949.

9. Study of the Dairy Industry. Hearings before the Subcommittee on Dairy Products of the Committee on Agriculture, House of Representatives, 84th Congress, 1st Session, Washington, 1955.

10. Bressler, R. G., Jr., and Clarke, D. A., Jr. "Resale Milk Price Control," Journal of Farm Economics, May 1955, pp. 280-91.

11. Report to the California Joint Interim Committee on Operations of Milk Control Regulations.

B. Problems in need of research regarding milk

1. Analyses to determine "proper" levels of prices

2. Merits of regional versus local orders

3. Compensatory payment features of milk orders

4. Market differences in pricing provisions

5. Inter-relationships between Federal order program and price support program

6. Effects of new products on State and Federal control

7. Extent to which State and Federal orders interfere with movement of products

8. Influences of innovations in processing and in transportation

9. Effects of pricing systems and levels of prices on uses

10. How to change the pricing mechanism to keep in line with needs of a changing world

11. Influences of orders on demand and supply schedules

12. Effect of orders on seasonality of production

13. Effect of orders on economic powers of various groups

14. Protection of public interest in the public hearing procedure

15. Extent of producers' benefits from Federal orders

C. Problems in need of research regarding fruits and vegetables

1. Implications of order provisions in pricing and utilization

2. Effect of use on farmers' returns

3. Objectives of surplus control programs; that is, justification for the State and Federal program on fruits and vegetables

4. Social or economic criteria for determining when orders should be used

5. Extent to which programs have achieved their announced objectives

6. Extent to which surplus removal programs retard production and marketing adjustments

7. Extent to which orders and agreements could be used for market differentiation

8. How surplus uses supplement other programs

9. How and to what extent orders affect producing firms of different sizes

10. Extent to which producers can improve quality before costs exceed benefits

11. Effects of quality standards on products imported and their relation to import controls

12. Need for effective guidelines on "quality" standards, that is, size, maturity, as well as the usual meaning of the term "quality"

13. Effects of programs on efforts to maintain quality

General comment.- Marketing agreements on fruits and vegetables are confined mostly to regulations as to grade, size, and maturity, but not as to price.

III. Research concerning programs to expand markets

A. A partial list of publications or other forms of research results

1. Pupil Response to Experimental Pricing of Milk. Wis. College of Agriculture, Madison, January 1956.

2. (a) The Effect on School Milk Consumption of a Reduction in Price Charged to Children in Selected Connecticut Schools. Conn. State Dept. Education, September 1955.

(b) The Effect of Various Price Reductions on Milk Consumption in Massachusetts Schools with Previous High Levels of Milk Consumption. Mass. Dept. Education, September 1955.

(c) Certain Factors Influencing Milk Consumption in Selected Public Schools in New Jersey. N. J. Dept. Education, December 1955.

(d) Pupil Response to Experimental Reduction in Price of Milk to Children in Selected Elementary and Secondary Schools in Madison, Milwaukee, Wisconsin. Wis. Dept. Public Instruction, August 1955.

3. Williams, S. W., Quackenbush, G. G., Bartlett, R. W., Baumer, E. F., and Cook, H. L. Increasing Milk Consumption in Schools. Mich. Agr. Expt. Sta. Spec. Bull. 403, North Central Reg. Pub. No. 60, August 1955.

4. Studies relating to barriers to trade by California Bureau of Markets.

5. Ways to Increase Use of Milk in Wisconsin Schools. Wis. College of Agriculture, Madison, March 1956.

6. Fruit and Vegetable Merchandising Program. Sponsored cooperatively by U. S. Dept. Agr. and United Merchandising Institute of the United Fruit and Vegetable Association, Inc.

7. Price Supports for Perishable Products: A Review of Experience. A Staff Report on the Scope and Cost of Price-Support Programs for Perishable Agricultural Commodities, 1933 to Date. 82d Congress, 1st Session, U. S. Senate, 1951.

8. (a) Fox, Karl A. The Analysis of Demand for Farm Products. U. S. Dept. Agr. Tech. Bull. No. 1081, September 1953.

(b) Clark, Faith, and LeBovit, Corinne B. Food Consumption of Farm Families, Meeker and Wright Counties, Minnesota, 1950. U. S. Dept. Agr. Info. Bull. 127, January 1955.

(c) Lebovit, Corinne, and Clark, Faith. Household Practices in The Use of Foods, Three Cities, 1953. U. S. Dept. Agr. Info. Bull. 146, April 1956.

(d) Clark, Faith, Murray, Janet, Weiss, Gertrude S., and Grossman, Evelyn. Food Consumption of Urban Families in the United States, with An Appraisal of Methods of Analysis. U. S. Dept. Agr. Info. Bull. No.132, October 1954.

B. Problems needing research

1. Effectiveness of the international wheat agreement

2. Barter arrangements and their effect on supply and disappearance

3. Section 32 effects in developing markets

4. The value of foreign trade fairs in developing markets

5. Means for evaluating potential of a foreign market

6. Effects of currency exchange factors on market development

7. The potential of luxury food as an outlet for surpluses

8. Effect of future increase of population growth on programs as well as on consumption

9. Total demand for major commodities as it affects programs

10. Effect of plentiful foods and consumer's information programs on food use

11. Effects of programs on use patterns--domestic and foreign

12. Implications of compensatory payment programs

13. Effects of advertising or education programs

    a. In stimulating consumption

    b. On competitive products

14. International implications of two-price programs

15. Effects of changes in ocean freight rates on consumption of U. S. farm products

16. Role of minimum standards for exports in expanding our export volume

General comment.- The U. S. Department of Agriculture study on barriers in milk marketing surprised many observers in that the consequences of existing barriers appeared to be less than commonly believed previously. This study emphasizes the need for similar studies within some States.

IV. Research relating to regulation of markets and provision of certain marketing services (for example, Commodity Exchange Authority, Interstate Commerce Commission, Packers and Stockyards Act, and Food and Drug Regulations)

A. A partial list of publications or other forms of research results

1. Regulations Affecting the Movement and Merchandising of Milk. A Study of the Impact of Sanitary Requirements, Federal Orders, State Milk Control Laws, and Truck Laws on Price, Supply and Consumption. U. S. Dept. Agr. Mktg. Res. Rpt. No. 98, June 1955.

2. Taylor, George R., Burtis, Edgar L., and Waugh, Frederick V. Barriers to Internal Trade in Farm Products. U. S. Bur. Agr. Econ. Special Rpt. to Sec. of Agr. 1939.

3. Hillman, J. S., Rowell, J. D., and Israelsen, V. L. Barriers to the Interstate Movement of Milk and Dairy Products in the Eleven Western States. Ariz. Agr. Expt. Sta. Bull. 255, April 1954.

4. Hillman, J. S., and Rowell, J. D. Barriers to the Interstate Movement of Agricultural Products by Motor Vehicle in the Eleven Western States. Ariz. Agr. Expt. Sta. Bull. 248, June 1953.

B. Problems needing research

1. Effect of Interstate Commerce Commission regulation on areas of supply

2. Effect of trip-leasing on marketing and production

3. Insurance protection via trucks versus railroads

4. Stringency of standards for purity

5. Effectiveness of food and drug regulations on wheat quality

6. Effects of compulsory consumer grading of products

7. Effects of various restrictions on the sale of dairy products

8. Effects of copyrights, patents, etc., on processing

9. Effects of labor practices on movement of farm products

10. Adequacy of enforcement of the regulations which are in operation

General comment.- Barriers to trade are established for reasons of protecting health of human beings, maintaining health standards of productive plants and animals, and for economic reasons.

Growing Need for Policy Research

The need for research results concerning programs and policies has increased since the Government is playing a greater role in the management of economic affairs. At the same time the risks to economic analysts and statisticians have become greater both because of exposure on more fronts and because policy decisions made on the basis of policy research have come to take on a greater consequence.

Problems in the Conduct of Policy Research

Much ad hoc research has been conducted by operating agencies in order to get needed answers. Many of these are adequate for such a purpose. They also could be useful for more general enlightenment. However, a two-fold problem exists with regard to release of these studies. First, the researchers may consider that their manuscripts are not sufficiently scholarly, and, in any case, they may not have the time to properly prepare the manuscript for publication. Second, there is the feeling by many researchers that their colleagues and others will look upon the product with suspicion as to bias.

It is obvious to any close observer that there is need for considerably more policy research. (See partial listings above under each section.) Funds for this purpose probably would be forthcoming if they could be wisely used. One of the questions to be solved is the matter of where the research should be conducted, assuming competent personnel are available. Within the U. S. Department of Agriculture this research may be in the operating agency, in a research division of the Department, or as a task force staff agency in the

Secretary's office. Or the research may be conducted in land-grant colleges, by contract with a private college, or by any other institution. Some research has been done by a task group from the industries concerned. All of these approaches have been used to some degree. The advantages of being located in the Department of Agriculture in Washington are that the research can be done closer to the operating program so that information can be gathered more easily and the operation of the program can be observed at close range. Except for this single consideration, a research staff of equal competence could conduct the research just as well at any location, although there is some feeling that a thorough research study could be more readily produced in a land-grant college or other institution outside the Department of Agriculture.

Risks in the Conduct of Policy Research

Ample evidence exists that there is risk both to the researcher and to the supporting agency in the conduct of policy research. The extent of risks, of course, is not measurable. It is of some significance, however, that the interstate movement of analytical services delivered personally by agricultural economists probably has been at an all time high in the past 12 months. This may be an effort by purchasers of these analytical services to find an "objective" analyst as well as the reluctance by some home State men to take on sensitive tasks within the borders of their State. Actually, in this arrangement, neither the seller of such services nor the buyer is guaranteed immunity against the risks they are attempting to avoid.

The biggest problem in the conduct of policy research is the matter of how to handle value judgments so that the resulting product will not be criticized for being biased. This is a very significant obstacle because to a certain extent "freedom from bias" and "competence" are incompatible in the same human being. A person who has progressed sufficiently in our educational system to justify being placed on a payroll to conduct economic research has some definite views about our social system. Although perhaps, unknowingly, even to the person doing this research, these "biases" will play a part in the choice of question to be analyzed, in the setting up of hypothesis to be tested, and in the selection of data to be used in testing the hypothesis. Some of these biases can be left implicit (kept obscure) without serious consequences. Generally, however, the success or failure of a policy researcher will turn on this one point, whether or not he makes his beliefs known explicitly to himself or to his readers (or listeners). It is the rare individual who has the art to accurately inventory all the pertinent value judgments that may become involved in any one project. No formula can be prescribed for success in this area. It is an art in the social science method that must be acquired with guided experience.

One way to make sure that biases are not left implicit is to employ the team approach in a study on the assumption that all members do not have the same value judgments and that by discussion the study can be made reasonably free of such effects.

Administrators of programs, legislators, and others are constantly demanding more research of a policy nature to help in their tasks. As the administrators' loads become heavier they must depend increasingly upon someone to draw practical conclusions from policy research. In some cases the research worker may be best qualified to accomplish this, but often he should be asked only to present consequences or alternative solutions rather than to state <u>any one</u> solution.

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APPRAISAL GROUP VII

GENERAL OBJECTIVES AND BALANCE

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Consultant's Report

Appraisal--General Objectives and Balance

The theme of this eighth National Marketing Workshop is "Agricultural Marketing Research and Its Use--Appraisal and Prospects." We have now heard reports dealing with six areas ranging from market information and statistics to public policies and programs. So far as I can generalize, the representatives of these appraisal groups are satisfied that we need research--more and more research. The assignment of Appraisal Group VII (and now of its consultant) is to view broadly the entire field, and to appraise from the standpoint

of general objectives and balance. This assignment fails to define the ultimate in impossibility only because the Workshop Committee has reserved that for the Friday morning summary session.

My comments draw heavily on two sources: (1) the discussions of Appraisal Group VII, and especially on the talents of our secretary Winn Finner; and (2) a set of well-developed personal opinions and biases. I propose to surround my topic by commenting on: (1) the problem of research appraisal; (2) objectives and balance; and (3) some appraisal models, including efficiency and welfare.

Research Appraisal

To an economist, the problem of the evaluation or appraisal of research is similar to other problems involving the allocation and application of scarce resource inputs in the production or creation of certain outputs. The appropriate theoretical framework, I judge, is to be found in the principles of production economics--both at project and aggregate levels. In simplified terms, the evaluation problem is viewed as a balancing of "costs" of performing the research function against the "value" of the research outputs. The research process involves the combination and use of a wide variety of non-homogeneous resources--the most important of which is imagination--in the creation of outputs, many of which are intangible and difficult to measure--the most immediate and perhaps most significant of which are satisfactions for the researcher--through processes or production functions that are vague, imperfectly defined, and uncertain.

This creative process is certainly one of the least predictable devised by man. In many areas, there is little assurance that research will result in important findings within any specified time period, or ever. Some strategic concepts are produced only after lifetimes of work, and some excellent lifetime efforts are rewarded only with meager successes unless positive values are attributed to negative results. On other occasions, a breakthrough may occur with gratifying suddenness and, once accomplished, may give rise to a long chain of applications and further developments. The essence of the situation is risk and uncertainty--with no meaningful estimates of the parameters of the probability distributions or of the distributions of distributions.

Suppose we visualize this in the conventional diagrammatic framework of a somewhat simplified problem of production economics. Our real research inputs largely defy measurement, but at least we can record certain purchased inputs in terms of the flow of dollars required to pay for researchers, assistants, clerks, supplies, equipment, and office space. In fact, this ability to measure the dollar flow is one of the serious problems confronting research--the costs are so obvious. This aggregate of purchased resources we will measure on the X-axis--as in all aggregates, we realize that we can vary the total, but also that we can vary the "mix" or proportions, and that such variations impose somewhat unfortunate limitations on our aggregate cost input.

The vertical or Y-axis in this diagram presents some difficulties, for here we propose to measure the direct results of the research. For present purposes, we will only remark that the scale for this axis is based on unknown, nonhomegenous, and unstable units. Fortunately, we can conceive of transforming these real research results to dollar "value" terms through application. This is a nonspecifiable function that takes research results, combines them with marketing extension specialists, and results in the "dollar value of research." This converted dollar value of research is plotted on the Z-axis of our diagram, extending perpendicular to the X-Y plane.

We now have the conceptual apparatus needed for direct appraisal of research. In this three-dimensional diagram, we can construct a plane bisecting the angle between the XY plane and the YZ plane--this represents the "break-even" relationship, where a dollar spent on research is just equal to a dollar value of research application. All that remains is to introduce the specific relationships for any particular research project. For some proposed project, we estimate the cost flow--we need to consider the time dimension, and perhaps we can suggest this simply by changes that occur in scale-time as we observe the diagram. We move along the X-axis to a point corresponding to this estimated cost, and there we place our observation. Eventually this point may move vertically--if and when there are research results. Following that, there may be a movement along the Z-axis--application! But the theoretical and statistical tools have yet to be devised that will permit us to make a meaningful estimate as to the eventual placement of this research result.

In terms of the aggregate of many projects, our situation is not greatly improved, although we may have a conviction that our past experience does justify an assumption that increasing research expenditures generally result in increased research product. The total points plotted on our diagram are like a swarm of flies. Through it all, we think we detect a tendency for results and values to increase in an uncertain relationship to increases in cost inputs. Perhaps this has some of the attributes of a rejuvenating growth function through time. Finally, research workers appear to share the conviction of the American public that the swarm of observations has a forward drift, and that by and large the social values from research far exceed the costs. This must be accepted as part of the "folklore"--even though our expanding levels of living lend support to the hypothesis.

Perhaps this is too negative, and I will agree that some research functions are almost predictable. These occur especially in the further application of developed concepts and techniques--the research exploitation of important breakthroughs. Such expanded applications are and should be very important components of our research. In the field of marketing information and statistics, for example, I feel confident that we can improve coverage and reliability, and even that we can make fairly good estimates of the costs of attaining any specified level of accuracy. In efficiency studies--such as those discussed by Eric Thor--our past experience provides a reasonable basis for forecasting the cost of obtaining particular research results in new applications. The major difficulty in these areas is on the value of the output side. Even if we ignore application problems, what value should we place

on more adequate market news? What value on cost and efficiency standards, and how long a time-lag in application?

The purpose of this section is to emphasize that research workers, administrators, or society have little real basis for forecasting the results of research inputs or the value of these results, that the creative process that we call research is inherently uncertain and nonpredictable, and so that there is little basis for appraisal or for selection. We can point with pride to past examples of impressive accomplishments. The question of the value received for public (or private) expenditures on research is a legitimate and an important question. Like many other important questions, the nature of the processes and the status of our knowledge does not permit very meaningful answers.

Objectives and Balance

If you agree in substantial part with the conclusions of the previous section, you now understand the reason for confusion in the discussions of Appraisal Group VII. The inability to establish definite and objective values for marketing research is necessarily reflected in an inability to evaluate this research from the standpoint of general objectives and balance. These matters troubled the members of the appraisal group, and forced our discussions and summary statements into generalizations that may be acceptable but provide little by way of guideposts on the road to future research. Decisions must be made on these matters, and at various levels from the research worker through the several administrative channels, but these decisions will be made largely on the basis of particular interests and value judgments.

So far as general objectives are concerned, the following report will indicate that we were able to go little beyond the statement of developing better knowledge.

Our discussions of balance suggested some of the ways in which balance might be viewed, without succeeding in establishing firm bases for priority ratings. The State Experiment Station Division supplied us with a cross-classification of federally financed marketing research in the state experiment stations, tabulated by functional and commodity groupings. This summary of the coverage of nearly 600 separate projects suggests breadth rather than balance, but at least it provides interesting evidence on the scope of the field. So far as balance is concerned, on what basis can we decide that the 27 studies of marketing ornamental plants or the 118 in livestock marketing are too many or too few? Is the social product maximized by allocating our 1956 research resources to 16 studies of means of improving market information and 103 studies of consumer preferences?

In the most significant sense, balance is concerned with the means--ends problem in research--a balancing of the needs or demands for research against the particular research resources available. At the level of research planning for a Department of Agricultural Economics, demands are certainly important but

the abilities and interests of the available research personnel are critical. It seems clear from the standpoint of efficiency in research that good balance under such conditions might well involve a rather narrow program if it were well oriented to the research resources, and that excessive scope may guarantee superficial work.

Our group also concerned itself with balance as between basic and applied research, and struggled with the problems of "descriptive" research. As a definitional matter, we may classify research as: (1) inventory research, such as the collection of census-type materials; (2) basic research, concerned with determining and describing inherent characteristics and relationships; and (3) applied research, where determined relationships are applied to the research solution of particular problems. To this might be added marketing extension as distinct from applied research--applied research need not involve adoption by marketing firms and agencies, but extension is definitely concerned with transmitting research results to the industry so that they may be utilized in the decision-making process. Again, we were unable to provide objective criteria on which to judge balance. It seems clear that all of these types of research are desirable, and certainly that research results need to be disseminated effectively so that the improved knowledge will result in better marketing decisions. A commonly expressed value judgment, and one that I believe would be held by most members of Group VII, is that we appear to have too many projects that are limited to inventory research and too few designed to determine and apply relationships.

Some Models

Having stressed and restressed the idea that objective appraisals of the value of research are impossible, we now turn to a brief listing of a number of arbitrary devices or models that may have at least limited practical usefulness in appraising and developing research. In several of these, names of individuals in our group have been used to identify the idea.

Spielman I - Is it "good" research from standpoint of its design and execution? Accept the particular problem and the stated objectives, and examine the particular procedures to see if adequate. This carries with it the idea that all improvements in knowledge are socially desirable, and that the important appraisal is largely in terms of the "efficiency" of the research itself.

Spielman II - Get good men, give them adequate support (and protection), and turn them loose. In short, depend on the researcher to develop his own lines, and be satisfied with the aggregate result in terms of coverage, objectives, and balance. If the researcher is well informed as to research completed or under way, the needs and demands for research, the possibilities of success with particular approaches, and realistically aware of his own abilities, it may be argued that this system will result in a socially desirable allocation, on much the same grounds that perfect competition happens to result in an economically efficient system.

The Pressure or Problem Model - Demands for research assistance as judged by the researcher's awareness of present and prospective problems--such as the impact of the St. Lawrence Waterway, or of population changes. A special case can be called Fox I--where the problem demand is implemented through pressure for work by industry groups. This orientation neglects the resource or research supply side and concentrates on need or demand, but it may be at least imperfectly a reflection of social need. In short, the "squeaking wheel" often does need grease.

Fox II - The aggregate model. Index number calculations to define changes in productivity, living standards, and so on. This model is not designed to help in specific evaluation or planning, but rather to provide some information on the aggregate gain from research. It involves the not-unrealistic assumptions that such gains reflect increases in technology, and that technological advances are related to research at least in the broad and all-inclusive sense.

Efficiency Models - I will not attempt to develop this in detail, other than to say that a certain demonstrable tendency for efficiency to be correlated (but not perfectly) with general welfare makes this an attractive model. Its use, however, seems more in designing research problems and approaches than in appraising balance or planning for the allocation of research expenditure. Fox III, discussed at the banquet on Friday, is a special case based on a simplified efficiency model stressing spatial aspects.

Perhaps the list is long enough. Before leaving my favorite efficiency concept, I would like to throw out two statements without elaboration. First, those individuals who from time to time criticize efficiency models as related to the concepts of perfect competition and plead for efficiency models based on "workable competition" or "monopolistic competition" appear to me to misunderstand the problem. These are the folks who throw the baby out with the bath water, and who would eliminate evil by redefining good. Second, Appraisal Group VII joins those who cry for the explicit recognition of welfare considerations in efficiency, but has been unable to find the solution to the familiar problems in this area.

Concluding Remarks

That research is important is widely recognized; that the appraisal of the value of research is desirable as an aid to planning future work is obvious; that such appraisals are possible only in superficial and largely arbitrary terms is, unfortunately, true. My final value judgment is that the most important limitation in research is inadequacy of basic concepts, and that the greatest improvement will come from researchers as they appraise their work from this standpoint.

Secretary's Report

The function of Appraisal Group VII has been to examine the objectives and balance in marketing research involving an "overall appraisal in terms of objectives, comprehensiveness and balance in coverage of the field, efficiency with which the work is organized and conducted, cumulative accomplishment, and effectiveness of results in application." In considering the most effective ways of approaching these points, the group decided that major emphasis would be given to an examination of three principal questions or areas, these being:

(1) General or central objectives of agricultural marketing research;

(2) Balance including continuity of basic and applied research, and integration of research both within economics and between economics and other subject matter fields; and

(3) Evaluation of present research.

The examination of these subjects then provides the basis for the conclusions reached by the group concerning the problems assigned. The committee did not deal with each of these subjects with equal comprehensiveness, and this condition is reflected in the following discussion.

It may be useful first, however, to consider the meaning of marketing research. A review of some of the principal enabling legislation providing funds for marketing research shows that no definitions of the field are contained in them. Likewise, Group VII did not undertake a precise definition. In its discussion the group visualized marketing research as applying to factor markets and to any problem or condition existing between the time products are being readied for sale by farmers and the time they are consumed in either their original or modified form. It does not encompass research designed to create new products--customarily referred to as utilization research--but it does include work on problems faced by management in the production and distribution of such products. With reference to marketing research in economics, the subject falls within the general economics fields of production and distribution and employs the same tools of analysis as are used in the general fields.

Central Objective

The central objective of research in agricultural marketing is to develop improved information useful to individuals or groups in making decisions concerning marketing and in better understanding the forces operating and the changes taking place in the agricultural marketing sector of the economy. The groups referred to include commissions, legislative bodies and others concerned with public policies and regulations, as well as corporations, trade associations, and other private organizations involved, directly or indirectly, in marketing operations. The information to be developed and systematically organized may relate to economic changes and interrelationships, to problems

falling within the physical sciences, or to any other subject matter field which can contribute to a better understanding of the present or prospective future developments in agricultural marketing.

These findings may be applied to a variety of problems as diverse as society. Thus, information concerning demand may be used in appraising the gains arising to certain individuals from restricting supplies. The same information also may be used in measuring gains arising to the general public from an expanded output. Some applications will relate to the individual or a firm and others to the entire economy or important segments of it.

Economists are confronted with the reality that economic ends are not necessarily ultimate ends but rather in some approximate way are ends coordinate with those concerning freedom, security, and other factors to which individuals or society attach value. Consequently there are no absolute or specific ends toward which agricultural marketing research necessarily must be pointed. In many situations, true enough, the circumstances or conditions under which research is conducted emphasize or specify certain specialized objectives. Legislation may partly reflect value judgments of society and thus establish research objectives. A current appraisal of USDA research, for example, has suggested that such publicly supported work should contribute "to a balanced, progressive and prosperous agriculture for the benefit of farm people and the nation." The January 1954 Economic Report of the President in stressing the importance of general economic growth implies that research pointed toward the following major factors would be beneficial and in the public interest: (1) individual freedom; (2) adequate economic incentives; (3) effective competition; (4) adequate savings and capital formation; (5) a growing fund of scientific and technical knowledge; (6) maintenance of economic stability; (7) a floor of security for the individual; and (8) extension and strengthening of international economic ties.

Because of the compatability in many instances between the income or material welfare of marketing firms, individuals or groups and the efficiency with which marketing operations are conducted, examination of ways by which efficiency--both in resource use and in pricing--can be improved frequently is the central objective of research work in this field. It must be stressed, however, that what is efficient at one level or operation may not be so at another simply because of the differences in the ends to be achieved. Furthermore, optimum efficiency cannot be properly viewed as an unvarying and inclusive ultimate but as a condition or state which is changing as the demands of consumers change, as technological discoveries provide new ways and methods, and as these developments are reflected in product and factor prices.

The purpose of the foregoing discussion has been to suggest the diversity of ends which are served by marketing research. Different marketing research projects properly may be attempting to accomplish different objectives. In view of this diversity, Appraisal Group VII does not believe that there are central objectives which broadly should characterize all research in marketing other than the objective discussed in the first paragraph of this section.

Balance

Appraisal Group VII considered the subject of balance from the standpoint of this general question: Is there too much or too little research of certain types or pertaining to specific subjects relative to the amount of research being directed to other types or subjects? This is the concept of balance adopted by the group. As such, balance can apply to numerous types of alternatives. Those which were considered specifically were as follows: (1) as among subject matter areas; (2) as between integrated and specialized conduct of research projects including the place of continuity in a research program; and (3) as between basic and applied research. The group recognized that problems arise concerning other questions of balance such as the division of research between domestic and foreign marketing, public and private research, local and terminal markets, and as between State and federally conducted research. The attention of the group, however, was centered on the first three mentioned above.

Balance—Subject Matter Areas

Presumably the objective in developing a research program is to so deploy research resources among various possible projects as to maximize the output of useful findings over a period of time. As a matter of fact it is practically impossible to employ this concept in order to achieve a "more balanced" program particularly since some level of sophistication already has been brought to bear on the subject by most individuals making decisions as to project emphasis. This position is elaborated in the consultant's paper, but some of the principal difficulties encountered in trying to measure balance may be listed: (1) There is no necessary relationship between the difficulty or pervasiveness of a problem and the extent to which research attention can usefully be directed to it; some problems are of such complexity as to raise serious doubt concerning the value of research on them at the present time, e.g., interpersonal utility comparisons; (2) research workers are not fungible, and individual research men who are exceptionally competent in dealing with some subjects may not be able to progress satisfactorily when dealing with others; and (3) there is no satisfactory technique for comparing the varying actual or prospective outputs of different research studies and for evaluating their impact and usefulness.

The group considered possibilities of measuring empirically the economic consequences of pursuing various lines of inquiry in terms of such variables as consumer prices and producer incomes, and it recommends that further attention be given to ways by which research results might be measured and comparatively evaluated. Such measures, if they could be developed, would be useful not only as an objective aid in project selection, but also in appraising the extent to which research in the aggregate is proving useful, i.e., in achieving balance between research and other activities. Since appropriate techniques and data for this are not now available, decisions made concerning subject matter balance in research must be on a value-judgment basis.

The foregoing discussion has stressed the practical impossibility of judging the relative importance of research in different subject matter areas on a comprehensively objective basis. Group VII, however, recognizes the need for decisions concerning the relative importance of various project proposals, and gave considerable attention to the value judgments of each member of the group, as to the areas of research where a change from the present level of emphasis seems desirable. It must be stressed that the areas mentioned in the following discussion are simply those which one or more members of the group proposed. Had the membership of the group been different, no doubt the suggested changes in research emphasis would have been different. Likewise, a more thorough scrutiny of present research and research problems by the group would have resulted in additions and refinements.

1. Industry Structure and Interfirm Relations Including (a) Efficiency of Operation and of Pricing Mechanisms, and (b) Marketing Institutions

This area of research is of growing importance, partly because of the increasing size and declining number of firms in most segments of agricultural marketing, and the effects these changes are likely to have on operating and pricing efficiency. Competitive relationships need to be examined more fully to determine the rapidity and extent to which producers and consumers benefit from increases in marketing efficiency.

2. Intelligence and Forecasting Regarding Future Changes and Their Impact on Marketing

More attention should be given to projects providing forward intelligence on trends, new technological developments and other events looming in the future. No other age has been characterized by as large possibilities for sweeping and rapid changes, affecting many phases of the economy including agricultural marketing. The growing interrelationships between agriculture and the rest of the economy likewise increase the prospect of changes to which agricultural marketing will need to adjust. This increases the importance of anticipating future possibilities so that research may not be wasted in the appraisal of markets and practices which are becoming outmoded and obsolete. A phase of this subject is the likely developments growing out of production research. In some cases, such as the expanded output of soybeans during the past two decades, new intercommodity competitive relationships may be created. In other instances, the expansion of production in particular areas will focus attention on new facility needs. Central to the work on future changes should be studies of (a) ways needed changes can be expedited; (b) methods of minimizing difficulties arising in the course of these changes; and (c) distribution of benefits arising from the changes made.

3. Research Methods

More work is needed to continue the progress made in improving research methodology. Over the past decade such developments as the formulation and growing use of the synthetic approach to efficiency studies, the sharpening of survey methods, the beginning application of linear and other programing methods, the superior techniques developed for handling budget and panel data,

and the better methods developed by the biological sciences for measuring color variations, all have enabled significant increases in the accuracy of research findings in certain types of studies and the conclusions drawn from these findings. Even greater progress may be achieved during the next decade by the intelligent expansion of inquiries concerning improved methodology.

One of the most important areas needing methodological improvement as was mentioned earlier is that of developing more objective procedures for evaluating the relative importance of different research proposals, and encouragement should be given to improving measures of the changing performance of the marketing system as a whole. A few members of the group stressed the complexity and difficulty of this, and doubted that any procedure could properly incorporate all factors which must be considered in project selection. These members felt that methodological improvement might be emphasized in other areas than that of overall research evaluation.

4. Foreign Markets and Demand

Less attention has been given to foreign markets and demand than their importance deserves, in the judgment of the committee, even though some phases of foreign trade do not merit significant expansion. The fractions of the production of different commodities which are exported may be highly important to both producer prices and incomes. Therefore, the functioning of foreign markets and the demand for American products on these markets should be better understood. Such an understanding would offer a better basis for a sound export trade than is offered by strictly promotional efforts which attempt simply to expand exports.

5. Preservation of Quality and Storage--Including Biologic, Engineering, Technologic, and Economic Aspects

This pervasive field in agricultural marketing has been explored with marked success during the past decade with the result that a variety of useful findings have been developed concerning the ways products can be treated, stored, packaged, and handled to lessen quality loss and spoilage. Yet the opportunities are still bright for the discovering of other procedures that will yield output increases of greater value than the costs incurred to achieve them. Furthermore, more efficient ways to accomplish given outputs need to be found.

6. Impact of Government Policies and Programs on Price and Market Structure

The sheer magnitude of many public programs and the sparse research attention given to them as indicated by the report of Group VI indicate this to be a field meriting considerable research expansion. Research can make important contributions to public policy decisions particularly if it is kept up to date and oriented to areas where major changes are taking place.

7. Demand, Consumer Knowledge, Market Appraisal, and Market Development

This highly important and broad field needs greater effort if marketing research is to make its full contribution to many problems in marketing. However, there are conflicts within the field which indicate the need for selectivity in determining the types of studies to be conducted. The committee believes that a useful start has been made in measuring the choices or demand of buyers for new products and product attributes including incorporated services which cannot be measured directly in the market place. This work should be developed further where results can be used to perfect the functioning of the marketing system. Ways must be found, however, of bringing price into the measurement process more comprehensively, and further work needs to be done in testing the validity of present techniques by such means as comparing preference results with those which may be available from actual sales records. Members of the group doubt that a satisfactory level of reliability has been reached in studies in this field to date. On the other hand, such studies could make an effective contribution particularly in situations where markets do not afford buyers full opportunity to express their wants. Markets may remain inefficient in meeting some attributes of consumer demand for protracted periods before adequate adjustments are made. Discount houses and the shift of shopping centers to suburban locations are examples of changes which occurred probably some time after the demand for them had arisen and could have been met within the established framework of existing marketing agencies. It was generally agreed that the controversy over the rationality of certain types of consumer buying behavior did not yield particularly useful clues to those conducting economic studies of demand. Rather, we need improved measures of demand regardless of the logic of purchase choices which are made. The group doubts the value of expanding work--at least that done by public organizations--generally referred to as product promotion, merchandising, and advertising. Sharp conflicts may develop between perhaps short-run gains to particular producer groups and similar losses to other groups. Likewise, such programs may, in fact, prove misleading to consumers and make more difficult the realization of those ends they in fact hope to achieve in their purchasing. Thus, research designed specifically to serve consumers' needs would, no doubt, reach differing conclusions on some problems than does research designed to expand markets for farm products. Grade designations, for example, will not be as meaningful to consumers if they are based on product attributes relating to handling and storage qualities rather than to their various end uses.

Finally, the group recommends additional attention to income and price elasticity studies particularly with respect to the effect of price and income changes on the demand for marketing services. Information on these subjects is of basic importance to many questions in marketing, and research concerning them should be broadly expanded.

8. Markets in Which Farmers Purchase Production Supplies

Aside from limited work concerning the functioning of farm supply cooperatives, little research has been pointed toward the functioning and present level of efficiency in factor markets. This is a market of considerable

proportions, and the tools used in examining product markets should be equally appropriate in studying the former. Group VII believes that the research in this area should be expanded sharply.

9. Inherent Characteristics of Marketing Processes, Firms, and Organizations

It has been popular to deprecate the frequency and lack of content of descriptive studies in the field of marketing. Group VII believes that many studies of this character have been weak, not because they describe, but because they do so in an unorganized fashion which fails to show stable relationships, they are not sufficiently penetrating concerning the inherent characteristics of the marketing process being reviewed, and because too often they are viewed as end products rather than as the basis for analytical examinations. In some instances they have not been planned with sufficient care to provide the groundwork necessary for their most fruitful application in later analyses. The group believes that additional studies designed to determine inherent characteristics not only will prove useful but will be essential in successfully developing other areas of research recommended for expansion. The inherent characteristics and their interrelationships include a wide variety of subject-matter areas such as: (1) channels through which products move; (2) transportation facilities and costs; (3) marketing functions performed at various levels and the inputs and outputs involved; (4) pricing procedures at various levels, including both farm and retail markets; and (5) organizational attributes of markets. This fifth category includes studies of the number and size of firms, the proportion of the market held by various firms, and the actual or potential amount of market domination exercised either through oligopolistic procedures, dominant firms, or formal and informal industry organizations.

10. Equity Considerations

Greater attention should be given to the examination of equity or welfare consequences of specific changes in market structure, prices, and efficiency, and from the standpoint of all population groups. For example, are interindividual income transfers in agricultural marketing feasible as a phase in accomplishing certain economic changes, and have those engaged in agricultural marketing research sufficiently assessed the advantages and weaknesses of this possibility? The group answers this second question in the negative. It agrees that equity and welfare are not subject to precise definition, but it believes that the impact of a given change on equity can be usefully examined by showing what these impacts will be and how they will affect the various parties involved in marketing. Alternative possibilities may be analyzed and future consequences of each shown so that more intelligent decisions may be made by the public. Improved inherent-characteristics research, as recommended earlier, will provide for an improved understanding of market functions and pricing procedures at various levels, and thus will yield some of the material needed in dealing with the welfare aspects of economic change. Likewise, further work concerning areas of economics transcending--but nevertheless affecting--agricultural marketing, such as monetary policies, and tax measures, should be encouraged as a step in the broader treatment of both equity problems and efficiency and organizational problems in marketing.

11. Dissemination of Information

Research findings will have maximum usefulness only if they are made known--and in some cases demonstrated and applied--to those who can employ them in the decisions they are making. Several methods have been employed to improve the effectiveness of dissemination, but there is not yet clear agreement as to the best approach. It is not likely that research workers ever will be able to examine comprehensively each of the specific problems brought to the attention of research institutions. Consequently, it would seem important for research workers to spend a major portion of their time in the development of findings having application to a variety of comparable problems. Extension personnel would then assume, in most cases, the job of applying these findings to particular problems. The effectiveness of this approach depends on the economic training of extension workers, and frequently on the participation of such personnel in the planning and development of research projects. In this way, research results can be applied more effectively and rapidly.

It seems essential to repeat that the 11 areas of expansion discussed in the foregoing are those suggested by one or more members of Group VII. They are in no sense Group VII recommendations; neither do they necessarily represent even a consensus of the group. These areas are not presented as an exhaustive listing, particularly with respect to the subordinate phases of problems where greater research effort is needed.

As is indicated by the information in the accompanying table, research currently is being developed in a wide number of areas at land-grant institutions and by Federal agencies. Considerable progress has been made during the past decade in broadening the coverage of marketing research work, and in intensifying the study of particular problem areas concerning which present information is most deficient. Nevertheless, there are numerous areas which have not been treated adequately yet by research nor are there sufficient resources at present to enable an expansion sufficient to deal with all of these problems. In this situation it is important that sufficient interrelationship should exist among successive project phases so that useful findings do not remain unexploited, and that greater stress should be given to the fitting of individual studies and their findings into larger formulations.

Balance--Continuity of Research

Another basis by which balance in research programs may be judged is that of continuity. Are phases of problems examined and then the attention of the research workers turned to phases of other problems with the result that important generalizations or applications cannot be made? This has been a common weakness of the research of many institutions and agencies during the past decade. The group recognizes that some new segmental problems cannot be avoided, and, in fact, that some of them should take precedence over continuity in a field already partly developed. Likewise, the shortage of competent project leaders, and the mobility of research personnel has posed almost insurmountable problems in trying to maintain continuity of research in some

Active marketing research projects being conducted by State institutions and Federal Government 1/

Functional divisions 2/	All projects			Grain and field crops			Fruits, vegetables and special crops			Livestock and products			Cross-commodity		
	Total	State	Federal	Total	State	Federal	Total	State	Federal	Total	State	Federal	Total	State	Federal
1	194	145	49	39	32	7	64	51	13	74	54	20	17	8	9
2	141	86	55	30	18	12	20	8	12	65	52	13	26	8	18
3	141	103	38	17	6	11	41	32	9	71	58	13	12	7	5
4	28	19	9	7	3	4	5	3	2	14	12	2	2	1	1
5	32	16	16	0	—	—	9	3	6	14	11	3	9	2	7
6	169	34	135	53	5	48	64	19	45	31	10	21	21	—	21
7	173	108	65	34	13	21	41	26	15	78	63	15	20	6	14
8	43	23	20	8	7	1	12	8	4	12	8	4	11	—	11
9	78	16	62	18	2	16	11	0	11	22	5	17	27	9	18
10	34	26	8	21	20	1	1	1	—	8	5	3	4	—	4
11	21	21	—	5	5	—	1	1	—	5	5	—	10	10	—
Total	1,054	597	457	232	111	121	269	152	117	394	283	111	159	51	108

1/ Complete lists of projects were not available for some agencies, and no projects are included which are being supported entirely by State or private funds. 2/ Lines 1 through 11 are: (1) Market structure and practices; (2) demand, consumption and prices; (3) consumer preference and merchandising; (4) grades, standards, and inspection; (5) market information; (6) maintaining and improving quality; (7) costs, margins, and efficiency of operations; (8) transportation and interregional competition; (9) cooperatives; (10) Government programs; and (11) miscellaneous.

situations. Nevertheless, the group believes that greater effort needs to be made to continue research in specific areas until basic problems are dealt with adequately and in order to have an up-to-date framework at least for major problem areas. In this way: (1) The technical knowledge of the individual research worker regarding a given commodity or functional level may be more usefully developed; (b) industry contacts may be strengthened with a resulting increase in the information provided by marketing firms; and (c) progress is likely to be more rapid and effective. To this end, more attention should be given to the following considerations:

1. Upon the completion of a project, it should be carefully appraised for clues which might be examined fruitfully through further investigation. Projects stressing the importance of particular problems should not be terminated simply because basic data regarding the problem have been assembled and summarized or because a particular alternative has not yielded positive findings.

2. Individual research workers should be encouraged to appraise the findings from a given project in terms of their usefulness in tackling more complicated areas meriting attention in the opinion of the research worker. Do the results from a particular price analysis, for example, suggest new formulations as to the pricing process in particular types of markets?

3. As an adjunct to the preceding two points, some institutions report that staff committees have functioned well in undertaking the appraisals suggested.

In some instances, commodity, and in other instances, functional continuity, will be most effective. The decision on this point will rest primarily on the kind and amount of background and training required for the particular kinds of studies selected for development. In any event, it seems unwise to fragment studies into many separate phases, as the group agreed that frequently research programs are characterized by too many small projects.

Balance—Integration and Coordination of Research

Another phase of balance concerns the matter of integration in research programs, both as to coordinated effort among different research workers, and as between the development and the dissemination of information. The principal points which need emphasis are the following:

1. Economists should participate in all marketing projects because of the essentiality of economic evaluations pertaining to the subjects being examined.

2. Likewise, to effect a better integration of research and extension work, those who will disseminate research results and show their application should participate in projects at least to the extent of developing a fuller understanding of the variety of factors which have significance, and of the strong and weak points so that extension work may be accomplished more effectively.

3. A freer movement of data among research workers and between research and service programs should be encouraged as a means of strengthening research and expediting its successful completion. There is too much "departmentitis" in some research organizations.

Perhaps the most important element in improving cooperation in research is the development of mutual trust and interest in common problems among research workers. The use of common office space and jointly conducted field operations are likely to prove more important than administrative edict. A new dignity for jointly-authored research reports, likewise, will be of benefit in improving integrated effort.

During the past decade, substantial progress has been made in improving team effort in research. This technique frequently has been used with success in many physical-science inquiries, and has encouraged similar techniques in marketing. Larger staffs have also aided in this change. Perhaps the most important factor effecting an improved integration and coordination of research during the past decade has been the growth of regional projects. These projects themselves, particularly during their earlier years, do not necessarily reflect the advantages of joint effort, but the systematic and regular exchanges among research workers which they have fostered are judged by the group to have been of substantial value in improving the breadth and quality of projects in many of the institutions and agencies cooperating in regional projects.

Balance--Basic Versus Applied Research

Considerable attention at times has been given to the question of balance between basic research and applied research--i.e., between research not necessarily oriented toward a specific problem in which the major emphasis is on the discovery of fairly stable relationships, and research pointed toward the application of these relationships to specific problems. In other instances, similar questions have arisen concerning the extent to which resources are directed toward inventory or census type research in comparison with other types.

The judgment of Group VII is that this is not a particularly important problem. As mentioned in the discussion of continuity, it is, of course, important to develop and systematize information that has wide application. In the main, however, the nature of the problem or the phenomenon dealt with will establish the kind of research needed, and this is a more useful determinant of the proper division among inventory, basic, and applied research than is that to be obtained by some arbitrary division. Likewise, the extent to which the exploration of the new in techniques and methods of approach should absorb research resources probably will be answered best by giving research workers a wide area of choice to determine where improvements of this nature are most needed or are required before particular kinds of evaluations can be performed.

Evaluation

On the basis of its review of the research of the past decade, the group concluded that substantial progress has been made in explaining the functioning of the marketing system. This has been reflected in better appraisals of the effects of particular programs or practices, actual or potential, on prices and efficiency. Likewise, research personnel have made steady progress in developing better ways to conduct research inquiries, and these improved methods are being employed with increasing frequency. Furthermore, the effectiveness of results dissemination has been improved as extension workers and others have broadened their area of coverage.

It is difficult to place quantitative measures on the magnitude of the changes discussed in the preceding paragraph. Recent studies of productivity per man-hour show annual increases of 1.6 percent in the manufacture of food products and of 1.5 percent in wholesale and retail trade during the period from 1899 to 1953. For industry as a whole, the increase has been 1.7 percent per year for the period 1899 to 1953, but the average annual increase for the period 1948-53 was 2.5 percent a year. These data would suggest more pronounced year to year improvements in agricultural marketing in the period since World War II than during the earlier decades of this century. It seems logical to attribute part of this economic progress to findings developed by research.

Specifically, Group VII concluded that research in none of the major subject-matter areas should be curtailed. The group also concluded that marketing research in the aggregate should be expanded significantly as additional competent research workers become available. Specific areas of expansion are indicated earlier in this report.

Substantial accomplishments have been achieved during the past decade in providing information useful in the solution of many problems and improving research methods and tools. Nevertheless, there are many areas where the problems arising are now answered mainly by hunch or on the basis of fragmentary examination. Extensive enlargement of governmental participation in export sales, the growing mergers among marketing firms, likely application of automation to marketing processes, drastic shifts in storage and preservation practices as a result of atomic radiation, and the growing importance of such institutions as management-labor bargaining all are examples of prospective changes likely to have broad repercussions. There is every prospect that further research concerning these and other developments in marketing will serve useful and important ends.

Finally, Group VII would like to emphasize the unusual nature of research and the setting in which it is conducted. Too often the development of research results is visualized as comparable to a physical production process. Projects are written, funds are allocated, time schedules are set with a precision that is in fact unrealistic when the basic nature of research is fully understood. Obviously, some problems have been sufficiently simplified or narrowed so that procedures and timing can be estimated accurately. But

findings from these studies by themselves generally are not those making the substantial contributions to the field. There are no well established rules for discovering the unknown. Research thrives best where speculative imagination is encouraged, and it is important that conditions fostering this approach be encouraged more widely. There is, nevertheless, a growing evidence of improved research-administrative relationships at many institutions, and this is to be commended as a desirable step in making the research dollar more productive over the longer term.

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SEMINARS

Listed below are the participants and brief outlines of subject matter covered in each of the five scheduled seminars.

SEMINAR I

STATISTICAL AND MATHEMATICAL TECHNIQUES

Leader — Charles E. French, Associate Professor
Department of Agricultural Economics
Purdue University

Other Members — Gerald W. Dean, Res., Iowa
Ken Farrell, Graduate Student, Iowa
John A. Hamann, Res., AMS
George C. Judge, Res., Okla.
Lee Kolmer, Res., Iowa
George W. Ladd, Res., Iowa
Thomas C. Morrison, Res., Conn.
Allen Richards, Graduate Student, Iowa
John Schnittker, Graduate Student, Iowa
William M. Simmons, Res., AMS
John R. Tedford, Graduate Student, Iowa

I. Justification of statistical and mathematical techniques for input-output analysis. Survey of alternative methods.

II. Explanation of the theory of linear programming. Illustration of the general procedure with a study recently completed at Purdue University designed to determine optimum product lines under alternative situations in fluid milk plants.

III. Discussion of an application of the general procedure to grain elevator financing at Iowa State College. Explanation of spatial equilibrium models and the "transportation procedure" in linear programming. Discussion of a project using such techniques in studying interregional competition in dairying at Purdue University.

IV. Illustration of solution methods in the "transportation procedure." Survey of current research in the area of statistical and mathematical techniques in input-output analysis. Evaluation of these techniques and comment on their future use.

SEMINAR II

STATISTICAL ANALYSIS OF ECONOMIC RELATIONSHIPS

Leader — Richard J. Foote, Head, Price & Trade Research
Statistical and Historical Research Branch
Agricultural Marketing Service

Other Members — G. R. Boddez, Graduate Student, Iowa
James T. Bonnen, Res., Mich.
Ted R. Booth, Res., Okla.
A. A. Brown, Res., Mass.
William A. Cromarty, Res., Mich.
Alfred R. Eckert, Res., Nebr.
Conrad Gislason, Res., Wash.
William E. Goble, Graduate Student, Iowa
A. H. Harrington, Res., Wash.
D. N. Harrington, Res., Mo.
Steve J. Heimstra, Res., Iowa
Jack D. Johnson, Res., Va.
M. Brice Kirtley, Res., Ill.
Patrick J. Luby, Res., Purdue
Wilbur R. Maki, Res., Iowa
Earl E. Miller, Res., AMS
Joseph C. Purcell, Res., Ga.
Frederick E. Stocker, Res., AMS

First session - (1) Conditions under which equations should be fitted by a method other than least squares; (2) reasons why the method of reduced forms cannot be used for overidentified equations; (3) contrasts between the computations involved in fitting by least squares and the limited-information approach; and (4) algebraic manipulations involved in the use of equations for analytical purposes.

Second session - (1) Discussion by William Cromarty of Michigan State University of work he is doing on developing an aggregative model for American agriculture, with emphasis on tying one sector in with another; and (2) discussion by A. H. Harrington and Conrad Gislason of the State College of Washington of work they are doing in working with daily sales from individual stores in an attempt to measure (a) the influence of quality and price on sales, and (b) competition among fruits.

Third session - Discussion of a 9-equation model for eggs developed by Martin Gerra of the Agricultural Marketing Service, with emphasis on integrating supply and demand relationships and of adjusting for nonlinear variables and relations. Exact steps in formulating and fitting the model were

outlined, with mention made of those parts which we expect to run on an electronic computor.

Fourth session - Miscellaneous topics including (1) measurement of price relationships within markets by grades; (2) measuring the separate effects on demand of price level and real income; (3) long-run versus short-run elasticities; (4) use of "expected" prices in measuring supply relationships; and (5) problems of locating data in time series analyses.

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SEMINAR III

USE OF SURVEY AND EXPERIMENTAL TECHNIQUES

Leader — Earl E. Houseman
Statistical Clearance and Standards
Agricultural Marketing Service

Other Members
John T. Buck, Res., Va.
Horace K. Burr, Res., ARS, Calif.
Lyle D. Calvin, Res., Ore.
Dorothy Dickins, Res., Miss.
B. A. Dominick, Jr., Res., Cornell
Philip B. Dwoskin, Res., AMS
Marquis Fowler, Res., Okla.
R. C. Gaarder, Grad. Student, Iowa
Gwynn Garnett, Adm., FAS
Jenn C. Gifford, Res., Wash.
Truman F. Graf, Res., Wisc.
Peter L. Henderson, Res., Va.
E. Elizabeth Hester, Res., Pa.
Ruth Hodgson, Ext., FES
R. B. How, Res., Guelph, Ont.
Henry J. Huelskamp, Res., AMS
Don Kaldor, Res., Iowa
Ellis W. Lamborn, Res., Utah
Rosalind C. Lifquist, Res., AMS
Glen H. Mitchell, Res., Ohio
A. V. Nordquist, Serv., AMS
Albert L. Owens, Res., R. I.
Richard Phillips, Res., Iowa
L. J. Pickerel, Ext., Minn.
Ewart P. Reid, Res., Ottawa, Ont.
C. P. Schumaier, Res., Ill.
Sam H. Thompson, Res., Iowa

In this Seminar, selected experiences with methods of obtaining data were discussed. In general, the objective was to discuss some of the more important specific applications of various techniques and the results rather than having general discussions of statistical methods that are useful in marketing.

About a fourth of the time was spent on a review of some uses that have been made of formal experimental designs to measure the effects of alternative merchandising practices in retail stores. The importance of using designs which provide for the application of the treatments (merchandising

practices) in sequence in the same stores was stressed as a means of greatly reducing the experimental error as compared to designs wherein only one treatment is applied in any given store. When the total number of treatments to be tested is as many as four or more, some uses that have been made of incomplete block designs were discussed. With incomplete block designs a treatment can remain at a store for a longer period of time without increasing the total length of time that the experiment must run. This may be of importance if the initial reaction of a treatment is different from results after the treatment has been in a store long enough so that repeat purchases can take place. A review was given by Paul Homeyer, from the Statistical Lab at Iowa State College, of some of the important principles for designing experiments and of the assumptions underlying the analysis of variance and their implications in applied work.

Dr. Lyle Calvin, Experiment Station Statistician at Oregon State College, discussed the use of 3-dimensional color pictures in the measurement of consumer purchases for beef. There was a keen interest in the possibility of using 3-dimensional color pictures for preference determinations because it offers a number of advantages over other methods. A comparison of preference patterns obtained from tests with fresh cuts and from tests using 3-dimensional pictures was presented.

A discussion of methods of obtaining information on food purchases by consumers included a presentation by Dr. James D. Shaffer of the experiences that Michigan State University has had with the operations of a consumer panel in Lansing. This was followed by a discussion of the panel (a sample of families that keep records of their purchases) versus the interview survey as methods of obtaining purchase data, and by a presentation of some results from a project in which retail sales of apples and pears were measured weekly by the so-called audit and observation methods in a sample of 60 stores in Philadelphia.

About half of the last Seminar period was spent discussing or answering questions raised by persons in attendance. During the remainder of this period Mr. Marion Bryson, survey statistician from the Statistical Lab at Iowa State College, presented details of a sample design that had been used to obtain a sample of households in Des Moines for a consumer preference study.

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SEMINAR IV

OPERATIONAL PROBLEMS OF FIRMS

Leader — Max E. Brunk, Professor of Marketing
Cornell University

Other Members — Hugh L. Cook, Res., Wisc.
Clifton B. Cox, Res., Ext., Serv., Purdue
R. B. Donaldson, Ext., Pa.
Rollin O. Dunsdon, Res., Ext., Purdue
Ernest J. Holcomb, Serv., AMS
Fred E. Koller, Res., Minn.
Warren J. Mather, Res., FCS
John H. McCoy, Res., Kans.
Daniel H. McVey, Res., FCS
J. T. Scott, Res., Iowa

Discussions were primarily concerned with the various research techniques used by methods engineers and economists in approaching physical operating efficiency problems of the firm. Illustrations of the various techniques were given by different members of the group. These techniques included the three basic approaches of the engineer -- Motion and Time Study, Work Simplification, and Time Measurement Standards. Considerable discussion evolved around the way economists had adapted these approaches to comparative cost analysis and synthesis. It was agreed that economists could use many engineering techniques to advantage but that best results were obtained when problems were attacked on a team-work basis.

A problem of industry wide plant location was discussed. This demonstrated how model construction could serve to establish both goals of efficiency and measures of cost in maintaining given degrees of competition.

One session was devoted to problems of coordinating the activities of economists, engineers and production specialists, working on a common problem. With many studies of operational efficiency the extension worker should not only help plan and disseminate results but also work directly with the team throughout conduct of the study. Much of the extension work in this area is done during the process of data collection.

Many questions were raised during the discussions. What consideration must be given quality of product and work in comparative cost analysis? How useful are the tools of linear programming, link-analysis, ratio-delay, cueing theory, etc." What are the requirements for the successful application of these tools? How far should the economist venture into the field of engineering? What criteria can most profitably be used in identifying problems offering greatest contribution to increased efficiency in marketing?

SEMINAR V

ADMINISTRATIVE METHODS AND TECHNIQUES IN THE DEVELOPMENT AND OPERATION OF MARKETING RESEARCH PROGRAMS

Leaders

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Other Members

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To present an orderly manner in which the seminar could operate, discussions were centered around four major topics. The four topics were as follows:

A. Research program development.
B. Organization for effective research.

C. Personnel.
D. Communications.

It was recognized that the group would not be able to discuss the full array of problems and techniques associated with each topic but should attempt to select two or three of the seemingly more important items for specific discussion.

A. Research program development

The type or extent of research programs conducted by a public agency is usually determined in large measure by legislation authorizing or directing the work. It was assumed that all in the group were familiar with the Research and Marketing Act, the legislation most directly associated with our marketing research. However, it was emphasized that persons responsible for administering research conducted pursuant to the Act must be particularly aware that:

1. The Act authorizes funds to be expended for marketing research, which necessitates the formulation of policy as to what is included in marketing research; and

2. Duplication of research programs or projects must be avoided. There have been no less than 8 Congressional investigations to date relative to the work being carried on under Research and Marketing Act funds. Most of these have directed attention to this point.

In the development of program objectives, consideration must be given to:

1. Subject matter in the program to be supported. Persons at the operating level frequently have difficulty in separating the phases of a project that relate to marketing from those relating to production. An administrative function is to delineate these fields and where needed to work out financing arrangements whereby the phases of work can progress together without entailing the use of funds for an unauthorized type of research. Programs to be supported should generally be geared to the welfare of the public rather than directing efforts toward benefits that will accrue only to a particular segment of the economy.

2. Area to be served. This depends upon the type of institution as well as its location, be it state, national, industry, etc.

3. Types of research to be emphasized. Basic research tends to be done largely in the academic institutions where there are generally less pressures for immediate results.

4. The needs of the various groups or interests to which the research agency has some responsibility.

Selection of Problems or Projects

It is evident that to maintain a "grass roots" atmosphere in relation to the research programs and avoid an "ivory tower" approach to all problems, it would be necessary to obtain guidance from persons not directly associated with research. Title III of the Research and Marketing Act provided a basis for a committee structure that would help bridge the gap between the scientist or researcher and the people the research was intended to serve. An Agricultural Research Policy Committee consisting of 11 members was established to lend guidance to the selection of problem areas. This committee was supplemented by the establishment of 25 commodity and functional committees.

Progress reports are now developed annually which permit the scientist to indicate what he considers to be the most urgent problem area and areas in which research work should be done. The appropriate commodity or functional committee then decides the problem areas of greatest importance. However, this does not establish a mandate that the projects will be undertaken in the order of importance assigned by the committee as the administrator must decide if the means at hand justify undertaking research in these areas.

Considerable discussion centered around the selection of membership and the functions of the committees. Such discussion could be grouped as follows:

1. There is not sufficient exchange of ideas between the marketing research people in a state and the representatives from that state or region participating on advisory committees.

2. Belief that committees did not have adequate representation of persons acquainted with research. This brought forth the comment that the committees must be kept in balance and avoid getting the group too technical. Research people are always available for consultation when committees are in session and are usually present in significant numbers.

3. Committee memberships are set up by design. An overweighting of research members would channel the committee action into "how" rather than "what" research should be done. It is intended that committee action will assist in determining what is to be done and leave how it is to be done to research people.

4. There is a continuing problem of "tieing together" the state and federal research programs. This arises in part due to the fact that the committees review mostly U. S. Department of Agriculture results and are much less familiar with state research. The problem is recognized and USDA is calling on the services of more persons acquainted with state work.

5. Several states have set up state committees to coordinate the research work and bridge the gap between research,

industry, and the public. Problems are encountered in determining the membership of committees and the type of committees needed. These problems generally have to be solved on an individual state basis.

6. The translation of committee recommendations on problems into research projects should be reserved for the professional scientist who is to be responsible for the work.

Budgets

A budget is a tool or means of expressing a broad area of work or program. One of the more difficult problems associated with the preparation and presentation of a budget is how to measure the work done or to be done in terms of man-hours of work accomplished. This is even more difficult in the area of research as requirements cannot be readily expressed or predicted in quantitative terms.

B. Organization for effective research

The group was primarily interested in organization problems at two levels -- federal and state. The recent reorganization of the U. S. Department of Agriculture was presented with some of the reasoning behind the present organizational structure. After a decision is made regarding the point where research is to be segregated from other functions in an agency, the approaches that may be used in organizing a research staff may be as follows:

1. Commodity lines -- this approach is generally supported by industry.

2. Scientific disciplines -- this approach is supported by scientists and academic persons.

3. Functional lines.

The state and federal organizational problems are quite different but have the common problem that marketing does not lend itself to any clear-cut demarcation relative to lines of work. Whether the commodity, discipline or functional approach is used as a basis for organization, there will be considerable need to arrange integrated or joint work that will require careful coordination at all levels.

Federal organization was based largely along functional lines. It is working out quite satisfactorily though some industry groups express a desire for a commodity organization.

State organization is usually along commodity or discipline lines. This type of organization is best suited to the lines of discipline already established by academic institutions for teaching programs with which the work is associated.

It is difficult, however, to hold to a strict organizational line following a single pattern because of the influence of historical development and other factors. Discussion of the different lines of organization indicated that there are numerous and wide differences as to the advantages and disadvantages of the various lines of organization. Basically, organization becomes an individual state problem that must be resolved to best suit each state requirements. The goal of any organizational plan should be to create an environment that would be conducive to spontaneous development of research integration. Effective organization comes about through people wanting to work together and developing a mutual feeling of confidence and respect. Fraternization was frequently cited as the groundwork upon which to instil effective integration of activities.

Administrative Intelligence

Research must be directed and guided by the problems currently emerging and those expected to emerge at some future date. There has been criticism that too much research has been done on yesterday's problems rather than those of tomorrow.

In order to administer an effective research program, administrators must keep abreast of:

1. Technological development.
    a. In the area of marketing and their effect on the other phases of the market.
    b. Outside the area of marketing such as farm production.
2. Trends and changes relating to consumers.
    a. Population, location, habits, preferences, etc.
3. Developments and changes in industry.
4. Legal and contractual devices.
5. Changes in transportation.

Administrators must have adequate information on which to base decisions as to the direction that research should take. This means that the right decisions need to come from persons at the operating level who in turn must have some guidance on economic and technological trends from a reliable source. The provision of such information might well be arranged as an administrative staff function. It was generally agreed that good factual data on which to make decisions regarding long-term future research are not now generally available.

C. Personnel

At the present time there is a shortage of personnel qualified and willing to accept work in the field of marketing research. Increased funds made available for marketing research when translated into people represents a rather rapid increase in demand for persons trained in marketing research. Initially a good part of the demand was satisfied through the employment of persons having experience in research programs though not necessarily trained in marketing research. It now appears that the point has been reached where it will no longer be feasible to convert persons not trained in marketing.

It seems reasonable to assume that succeeding years will bring increased appropriations for marketing research which will bring into sharper focus the problem of obtaining qualified people.

In the area of ways in which recruitment could be aided, the following suggestions were made:

1. Need to reach students at the high school level to acquaint them with the advantages of selecting a course ending with an advanced degree. This approach will take considerable time.

2. Need for larger monetary allowance for students engaged in graduate work. Something more than a bare subsistence allowance.

3. Need for more careful guidance of student's undergraduate course to more adequately prepare the student for advanced work.

4. Need to emphasize the long-range benefits to be obtained through advanced work as compared to the short-time gain of a Bachelor's Degree.

5. Need to explore the possibility of an expanded program of subsidizing students through industry grants.

6. Need to break down some of the old philosophy that graduate students must produce some work for the money received -- may be no reason why students could not be paid while taking graduate work and be expected to produce only a degree. Student could be considered as in a status of training while working on an advanced degree.

7. Need to revamp and evaluate the college curriculum to better prepare student for graduate work. Students in the school of agriculture need not have courses slanted toward returning to the farm.

8. Need for expansion of the student trainee program. At present, number of positions is quite small and prohibits

wide advertisement for such a limited number of jobs. Colleges can be helpful by providing the names of persons who would be interested in trainee jobs during the summer.

9. Need to advise graduates of the advantages of going into public service.

In addition to the task of recruiting personnel, there is the ever present need to encourage present personnel to continue at their work. Some methods discussed as a means of retaining present personnel were:

1. Monetary benefits. Higher pay scale with more liberal incentive or meritorious cash benefits.

2. More liberal fringe benefits.

   a. Hospitalization.
   b. Retirement plan.
   c. Social security.
   d. Life insurance.

3. Provide an opportunity or challenge to make a contribution and receive due recognition.

4. Assist new employees in securing housing.

5. Provide faculty voice or participation .

6. Provide an opportunity to participate in other projects or work for short periods.

At the present time, research workers are being faced with a shortage of facilities with which to carry on the expanded research program. It is anticipated that the situation will become increasingly more serious as additional funds are provided with no provision for added facilities. There is encouragement through the recent request of Congress for a report of the situation. It seems likely and appropriate that added facilities will occur in the more important receiving areas.

The group viewed with great interest the film, "The Inner Man Steps Out." It was generally agreed that viewing of such film is well worth the time as it portrays situations that strike quite close to home in terms of suggesting defects or limitations in handling personnel because of inadequate consideration of hopes, ambitions and characteristic reaction patterns. Better understanding can reduce the tensions that develop in the administrator himself.

Newer Developments to Help Stimulate Creative Thinking

The group's attention was directed to a new school of thought that is developing techniques for stimulating creative thinking. One such technique is generally referred to as "brainstorming" and consists of getting a group together to create or build ideas relative to a particular problem. Ideas, however novel, are encouraged without fear of criticism or a negative note. All ideas are recorded and are later reviewed to sort out and pursue those ideas that appear to have merit.

Source materials that deal with this new school of thought are listed below:

1. "Imagination - Undeveloped Resource" by a Student Research Group Manufacturing Course, Class of 1955. Harvard Graduate School of Business Administration.

2. "Creative Engineering." Seminar Session Notes, 1955. Creative Engineering Laboratory Mechanical Engineering Department, Massachusetts Institute of Technology.

3. "Applied Imagination" by Alex Osborn.

4. "Brainstorming." Factory Management and Maintenance, Vol. 114, Number 5, May 1956.

5. "Creativity Can Be Developed" by C. F. Hix and D. L. Purdy. General Electric Review, May 1955.

6. "How to Think Things Up" by James M. Liston. Better Homes and Gardens, September 1954.

D. Communications

In the area of communications, three aspects should receive consideration. These aspects are as follows:

1. Personal. A survey of business men indicated that one of their real problems was the matter of personal communication -- how could they remember all of the items they should take action on each day. Most people have to rely in a large degree on recorded reminders.

2. Staff. Every administrator is faced with a real problem of keeping his staff fully informed on all matters pertinent to their work and pertinent to the entire organization. A lack of information results in persons formulating their own conclusions which have every opportunity of being completely erroneous. Additional problems arise in that the research people and administrative people may place quite different

interpretation on the same communication. It not only is important what is said but how it is said and the connotation that it may leave with the reader. Written material is subject to misinterpretation just as easily as conversation.

3. Tools of communication employed in our research enumerated by the group were:

   a. Administrative memoranda. The Agricultural Marketing Service introduced such media covering a wide array of fiscal and policy subjects. This system is excellent but it has encountered one negative reaction worth noting. There has resulted a large volume of material going to field offices which most people at the operating level interpreted to be read as received. Criticism arose that the volume of material was too great to read and left the impression of imposing on the time of research workers rather than conveying help.

   b. The Pink Sheet. This is an internal organ of the Experiment Station Service Division that is well received and keeps readers up to date on the latest developments. Brevity appears to be one of its strong points.

   c. USDA News. Received by readers as a good means of communication.

   d. Department list of new projects. Used relatively little by members of the group. Most felt that it would be more useful if projects were listed by subject matter. Some stations are now relisting such projects by subject matter prior to distribution to staff members.

The group was in agreement that timeliness was of major importance in the area of communications. Considerable concern was expressed over the large volume of material now being published. There appears to be a growing tendency to judge research people by the volume of material published rather than the quality of the material. Those responsible for publication should carefully evaluate any proposed publication to insure that it will serve a useful purpose.

Internal Communication

The question was raised as to whether or not it is permissible to write the Central Project Office relative to the material available pertaining to a particular field. The reply was that such requests are invited, but it is requested that such inquiries be as specific as possible as to the information

desired. There is some concern over the relatively little use made of the Central File compared with its potential use so it may be necessary to better make known the availability of the service it offers. The Experiment Station Service Division which maintains a similar file of federally supported state projects is now preparing summary lists of projects that will show research currently conducted by state and subject matter.

States use the following means of acquainting staff members with work pertaining to a proposed new project:

1. Projects are approved by the faculty after clearance through our advisors and department representatives. (Penna.)

2. Projects are reviewed and approved by a standing review committee having representation from each Department. (Mont.)

3. New projects are listed in the Monthly Staff Letter. (Tex.)

The federal system is to circulate among interested agencies all proposed new line projects before they are approved.

Progress Reports

Considerable improvement has been made through a reduction of the amount of information or verbage required in the report. There was no criticism voiced as to the need for progress reports, recognizing that they represent an important segment of administrative communications.

Media Available for Reviewing Work Done in Marketing

At the present time there is no single source that provides information on marketing research publications. The group strongly recommended that inquiry be made into the possibility of initiating a regular periodical abstracting published marketing research. (For example, the Chemical Abstracts.)

Disseminating Marketing Information

Comments by John G. McNeely, Texas A & M College

"The Texas Extension Service initiated a short course in marketing of 1½ days' duration for county agents that has met with very favorable success. The program was presented in a very effective manner and was effectively reduced to a 45-minute presentation for other types of audiences, such as administrators. Consideration is now being given to setting up a 6 weeks' course during the extension summer course. There was strong feeling in the group that it would be appropriate to establish scholarships for persons to attend a marketing course in one of the extension summer schools. This was suggested in view of the availability of such scholarships for other subject matter areas."

Comments by James Reynolds, AMS

"The information people find it advantageous to review the research proposed for publication with the author long before publication. Information specialists, radio and television personnel should also be called in prior to the actual publication date. At the time of publication the information people try to come out with a simultaneous press release and follow in rigid sequence with a radio or TV report, include a report in the monthly publication which is mailed to persons in the field of marketing, abstract the report for circulation to persons within the Department and to use for special requests for short information articles. This multiple approach has the advantage of getting much more mileage out of a particular report. Information released is usually aimed at the people between the farmer and the consumer."

The group viewed the film "Production 5118" which impressively depicted the possible dire consequences of neglected communications with internal staff people and with the public.

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RESOLUTIONS ADOPTED BY THE NATIONAL MARKETING WORKSHOP AT ITS GENERAL SESSION, JULY 19, 1956

I. We, the participants in the 1956 National Workshop on Agricultural Marketing, individually and collectively, express our sincere appreciation and gratitude to all who have made this Workshop an outstanding success, and more particularly to:

1. The Experiment Station Committee on Organization and Policy and the Extension Committee on Organization and Policy of the Land-Grant College Association, to the Commissioners, Secretaries and Directors of State Departments of Agriculture, and to the Agricultural Marketing Service for having sponsored this eighth Workshop on agricultural marketing.

2. Dr. James H. Hilton, President of Iowa State College, to Dr. Floyd Andre, Dean of the College of Agriculture, and to Dr. Karl Fox, Head, Department of Economics and Sociology, for extending an invitation to the Workshop and making available the excellent facilities of the College for conducting the meetings.

3. Arthur W. True and Barnard Joy for their tireless efforts in making arrangements, organizing and supervising the conduct of the Workshop.

4. Harry C. Trelogan and Herman Southworth, and to the Program Planning and Advisory Committee for a well planned, integrated and stimulating program involving the interests of researchers, Extension and State Departments of Agriculture personnel.

5. Geoffrey S. Shepherd, and the other members of the staff of the Department of Economics and Sociology of Iowa State College for their diligent attention to the numerous details that made our gathering here pleasant, productive, and enjoyable. We especially thank them for arranging for transportation; a browsing library; and for planning special events such as the picnic, tours, and the evening banquets which contributed so much to our enjoyable stay on the campus. We also extend our sincere appreciation to the graduate students of the Department of Economics and Sociology who were so helpful to us. We are likewise indebted to the stenographic staff of the Department of Economics and Sociology for having prepared for our use mimeographed copies of the lectures, group reports, and other materials.

6. The Group Leaders, Secretaries and Consultants for their guidance and stimulation of discussion at the appraisal group meetings and seminars, and to the speakers at the general sessions for their stimulating addresses.

7. Mrs. Gertrude M. Farmer, Secretary of the Workshop, for her pleasant and efficient handling of general information, secretarial work, and other related activities.

8. And the administrators of our respective colleges, agencies and departments who made it possible for us individually to attend this very worthwhile Workshop.

II. In view of the opportunity which these workshops afford in the exchange of ideas, discussion of theoretical and practical issues of agricultural marketing, of methodology and new approaches to the solutions of marketing problems, and the general benefits derived from participating in these workshops, we recommend:

1. That participants of this Workshop be encouraged to make verbal reports of the Workshop to their respective departments and administrators as soon as possible, and also to their respective representatives on the Experiment Station Marketing Advisory Committee, the Extension Marketing Advisory Committee, and the Advisory Committee for the State Departments of Agriculture.

2. That national agricultural marketing workshops be continued on an annual basis; however, that careful consideration be given to the following changes:

   a. To shorten the period of the workshop to one full week, with sessions beginning on Monday morning and continuing not later than Saturday noon.

   b. To plan a program in which research, extension, and service workers would participate. Considerable emphasis was placed by the marketing researchers themselves, and by administrators at the 1956 Workshop at Ames, Iowa on the need for a team approach to marketing problems as a means of obtaining the desired maximum objectives and effectiveness from marketing research. In line with this there should be about equal emphasis on research, extension, and service work during the entire workshop. With such an arrangement even more effort should be made to encourage administrators from the different groups to attend. With such an over-all arrangement the time might be divided between general sessions, separate sessions for research, extension, and

service and probably administrative personnel, and joint sessions arranged along both functional and commodity lines.

c. To making longer time arrangements with regard to the geographical location of the national marketing workshops, with the idea of rotating them in the various regions of the country. A special appeal might then be made to administrators of research, extension, and service groups to approve participation for a large number of workers in marketing from the region where the workshop is held in a given year. However, the program should be continued on a national marketing workshop level.

d. To making the national marketing workshops all inclusive, not only with regard to research, extension, and service groups, but to personnel who may be working on special phases in marketing. As an example, personnel in consumer education in marketing should be in attendance at the national marketing workshop. Consideration should also be given to personnel in related areas.

Respectfully submitted by the Resolutions Committee:

E. Elizabeth Hester, Penna.
W. J. Kuhrt, Calif.
Elmer J. Working, Wash.
D. M. Thorpe, Tenn.
W. T. Pentzer, Wash., D. C.
W. H. Dankers, Minn. - Chairman

SUMMARY OF THE WORKSHOP

Herman M. Southworth
Agricultural Marketing Service

The Workshop we are now closing set forth as its purpose, in part, "To appraise the progress in agricultural marketing research and the uses made of it in the last ten years and research needs in the years ahead...." Under this banner we have brought together some 190 people engaged in agricultural marketing research or related activites. Most of them have been here for six and one-half working days. Of this period, however, the larger proportion spent 4 half-days on the second purpose of the Workshop, participation in seminars designed "to strengthen /their/ professional competence."

If one were to take our assignment literally and out of context, one would think this a preposterous endeavor. To show just how preposterous, let me compare it with a similar-sounding undertaking going on concurrently in the Department of Agriculture. There a Committee on Research Evaluation is likewise endeavoring to appraise research. Its field is broader than ours in one dimension -- it includes all agricultural research, production and utilization as well as marketing. But it is narrower in two other dimensions. It seeks to appraise only research conducted by the Department, whereas we have included that in the State Experiment Stations as well. And it is focused on current program, whereas we have sought to cover ten years' work. Both endeavors, of course, are future oriented.

This Committee -- CORE, as it is referred to in the Department-- has gone about its task quite differently from us. The over-all Committee, of ten or eleven people, spent four days a week for the first month in detailed consideration of how it should go about its job. It then appointed twenty task groups, averaging around seven members each, to appraise research in twenty different areas. Detailed specifications were laid down of aspects to be covered and the form of report each should prepare.

The number participating in these task groups is thus not incomparable to our numbers here. All of them have spent more time, however-- probably the equivalent of several weeks full-time --on their assignment.

Furthermore, they have not gone off alone to an inaccessible spot like this to carry on their work. Rather, they have put in much of their time interviewing still other research workers in order to obtain the data for their appraisal.

Thus, the total labor input in the CORE endeavor is easily five or six times that for our Workshop. And it is spread out over a much longer period, giving more time for the gestation of ideas. Yet the uniform comment of the Task Groups in submitting their reports to CORE has been that the job was necessarily hasty and superficial.

I have labored this comparison only to emphasize that those who assigned our Workshop its task obviously had in mind something different from the detailed, systematic, comprehensive type of review that CORE is undertaking. Rather, I believe they had in mind that bringing us here together to discuss our work evaluatively would stimulate creative thinking regardings its strengths and weaknesses, ways of improving it, and new directions it should take.

Put in these terms, this year's Workshop is not different in essence from those that preceded it. They were concerned with "appraisal and prospect" too, in the fields of research they covered. We have only tried to look at the work in larger blocks, and to see these in the broader perspective of marketing research as a whole.

Let me briefly review, then, something of where we have been, up through yesterday noon, which I selected as cut-off date if I were to have any ideas crystallized by this morning. My gleanings are based on what I might describe as "fortuitous sampling" -- for my looking in on different groups certainly was not scientifically randomized nor yet a judgment sample either.

We started out last Friday with an address in which Harry Trelogan laid down for us a series of suggested questions to which we might wish to turn attention in our appraisal efforts.

Now some, I know, have felt that we might have done better had more specific instructions been laid down in advance regarding how the appraisal job was to be gone about -- a standard outline of points to be covered and procedure to be followed in covering them. This was considered, but was felt not to be consistent with the free spirit of our Workshops.

Some preparatory work was done -- not as much as I had hoped, for I had anticipated that I might contribute something in that direction. That was before I was assigned to CORE. Your secretaries, however, did do considerable work in compiling representative bibliographies, and special effort was made to get some of the listed materials here for the Workshop library and browsing tables. Lists of current State and Federal projects were also compiled, the former by Roscoe Saville of the Experiment Stations Division, ARS, whose help I want here to acknowledge. I take this opportunity also to express thanks to Sam Thompson and to Mrs. Orr and the College Library, for their efforts in making such helpful reference facilities and services available to us here.

Anyway, no over-all blueprint was laid down, beyond the questions offered in Harry's opening talk. Our hindsight rationalization of this is that we operated by the Bressler Academic Freedom Model. You were left to your own devices -- and by the same token you were left unfettered.

So much for the morning of the first day. In the evening we were treated to a most enjoyable, if technical, paper by Karl Fox, a logical corollary of which might have been that we could as well fold our tents and steal homeward. For Karl laid us down a blueprint, the Fox Spatial Equilibrium Model for Econometric Appraisal of Research. It was highly stimulating as to directions that

our future thinking might take in measuring the results of research. But it hardly provided a method that we could hope to apply in the week we were to be here. Fortunately, none of us took ourselves so seriously as to be discouraged by this; we stayed on.

The general sessions that followed gave us the benefit of views regarding our work from farmer, distributor, and consumer representatives -- Messrs. Taylor and Sadd, and Mrs. Alderman. They emphasized various practical uses that our research serves or could be made to serve if we would improve its orientation, timeliness, and effectiveness in application. Then Tuesday evening, Assistant Secretary Earl Butz offered us both some alibis for why we have accomplished so little and some reasons why he believes we have actually made a valuable contribution in spite of our handicaps.

Which brings us to Wednesday morning and the Consultants' reports. This Workshop will go down in history, if on no other ground, as the year of the Consultants' Rebellion. In previous workshops, "Consultant" has been a post of honor, a title conferred upon certain respected senior members of the profession, partly to entice them to come, but attaching no specific duties. This year we tried a different plan. The Consultants were to be plenary session speakers, presenting at the start of the Second Period of the Workshop their own views regarding the various fields of work being reviewed. In this they might draw as they pleased upon the discussions of their Appraisal Groups, but essentially they were to present papers of their own.

This was an admirable plan. The only trouble was our failure to make this responsibility clear to the Consultants beforehand. As they gradually became conscious of what was proposed, they raised loud objections. In the vivid language of one of them, they had been quite unaware of the devious implications of accepting a mere innocent-appearing invitation to the ice cream parlor.

So the plan was abandoned, and they were told that they might merely present progress reports on behalf of their Appraisal Groups, only adding such few, off-the-record, gratuitous comments as might come to mind. Whereupon to a man they turned to and produced a series of scintillating papers that I sincerely hope can be preserved for posterity in the Workshop Report.

I will not try to review these addresses -- surely they have impressed themselves indelibly on your memories. I will only comment on the substantial addition to our array of models, from Barton's Boot-hill and Thor's Ten-Man Team to that all-encompassing extravaganza of imaginative visualization, Bressler's Fly-Speculation Representation.

What I have been describing were, of course, the pyrotechnics of our exposition. In between and less spectacularly, our Appraisal Groups, as I sampled them from time to time, were going ahead with the review of their several subject-matter fields -- systematically, though each with its own pattern of digressions. I have not reviewed their individual and specific findings and recommendations, but I look forward with anticipation to reading these in the published Report. A few common threads will run through them, in spite of their differences in field.

A group of research workers can hardly come together to review their knowledge without reimpressing each other with how slight that knowledge is in comparison with what they need to know. Also, their awareness is reinforced by how superficial their knowledge is, and how little their true, basic understanding of what underlies the phenomena they study. Hence, statements on the need for more research, and especially more basic research, that I predict you will find in most of the reports.

Another bane of research workers, in such a field as ours, especially, is the slowness of those for whose benefit research is done to take up and apply the results. The counter-complaint is the failure of research people to present their results in applicable form.

This will be discussed in the reports. However, I note here a more concrete and positive approach than in past years. I would judge that we have been making real progress in learning how to enlist industry cooperation in some research areas, and in the same process stimulating industry interest in application of results. I was impressed also that several times in our meetings research people expressed vigorous support for expansion of extension programs to carry results of marketing research to those who should use them.

Similarly as regards interdisciplinary cooperation within research itself, where I would refer again to Eric Thor's team approach, and would cite also the discussions on research relative to quality, in which divers participants seemed to find communication less difficult than did a similar group at the Michigan Workshop in 1950.

What other new notes have been sounded? The Appraisal Group on "Research Relating to Public Policies and Programs" is an innovation that reflects a trend. This is the first workshop in which that area of marketing research has been explicitly and independently recognized.

Another new note was that of thinking concretely toward the quantitative measurement of the benefits from research--exemplified most clearly in Karl Fox' paper previously referred to.

It is interesting also to note shifts in the things complained of. The consumer viewpoint was ably represented this year, with a challenging presentation of his plight in our highly promotional economy, and an effective plea for research designed to help the consumer, not to exploit him.

Finally, I note with personal satisfaction a shift away from blanket condemnation of descriptive research to defense of good research of this character. Our semantic problems here were lightened by the contribution of Director Spielman of Connecticut, who taught us to say "investigation of the inherent characteristics of the system." But I sensed a clear recognition that to stay in business over the longer pull we need more research -- call it descriptive or by some other name -- designed to give us a basic understanding of our subject, and that we need more pooling and compiling of our knowledge, and more clarification and standardization of the terms of our science. The

question was raised whether, in some areas, at least, our methodology has not outrun our ability to use it. We heard open pleas for more freedom for researchers, less administrative impediments and more encouragement to imagination. These, to my mind, are healthy trends.

I said at the start that the theme of our Workshop, if taken literally, was preposterous. So, I might add, is my assignment of summarizing it. I have ignored the seminar phase of the program -- likewise an innovation, especially the seminar on administration -- and the ad hoc sessions, as well as numerous other activities. On the things I have mentioned I have been able only to make random comments. But my time has run out, so I shall only commend to you the Workshop Report that you will receive, as furnishing the systematic and inclusive summary of our past week's endeavors.

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REVIEW OF WORKSHOP CONTRIBUTIONS TO IMPROVED MARKETING SERVICE PROGRAMS

George H. Chick
Chief, Division of Markets
Maine Department of Agriculture

I notice by the program that the topic assigned to me for discussion this morning is the "Review of Workshop Contributions to Improve Marketing Service Programs."

Before discussing with you some of the direct benefits that the Marketing Service work has derived from workshops, I would like to briefly review with you the purposes for the establishment of such agricultural agencies as are represented in the audience today.

It makes no difference whether you are workers in the field of research, extension, or service; it is our duty to work for the prosperity of agriculture. In going about our various duties, I think it is well to occasionally sit down and review some of the demands and requests of our farmers. A close look at the farmers' problems today shows that:

(1) He is still looking for help and assistance in his production problems.

(2) He wants more and better information on crop reports and more market news information.

(3) You find him anxiously seeking more help and assistance on his grading and packing operations.

(4) The yearly increase in wages that has been secured by labor unions for industrial workers has, in turn, forced the farmer to pay more for labor. As a result, the farmer is urgently requesting help and assistance in all types of labor-saving devices, both in equipment and remodeling of packing houses and storages, to help in the better utilization of labor. This demand is seen in the potato fields of Maine and Idaho, where farmers are anxiously looking for improved machines for harvesting potatoes; or it may be poultry processors in Georgia, Delaware, and many other states looking for labor-saving equipment in the processing of poultry.

(5) We find many of our producers anxiously seeking aid in the marketing of their crops. They are particularly interested in some of the new developments designed to improve quality and consumer acceptance;

such as vacuum-cooling of fresh vegetables and fruits, and assistance in the proper methods of handling tree-ripened fruit. Probably in the same category would come the widespread use of modified storages for apples.

(6) Our new modern super-markets has been one of the big reasons for improving grading practices of agricultural products, and with it the farmer is asking help and assistance to find outlets for low and off-grade products left at home. I believe two good examples of research work in this field have been the development of cattle feed from potato starch waste and the utilization of poultry waste for feed.

(7) Seeking ways and methods of balancing supplies with market demands to assure a more stable income.

This is not a complete list by any means of what the farmer is seeking from various agencies, but I believe it will serve to illustrate the point I wish to make, and where I think the workshop fits into this overall picture.

When the farmer seeks help on any problem, his need is very apt to be urgent; and he very often is impatient and, above all, he wants help at once and not some future day. He does not care whether the help comes from the man in the Agricultural Experiment Station, Extension Service, or the State Department of Agriculture.

The farmer does not have the time nor inclination to familiarize himself with the complex laws that set up and spell out the duties of our respective agencies; and thus the responsibility should be with us to expedite his request to the proper agency and show interest in his problem, even though it may not fall within our respective field of work.

To me the National Workshop has served to broaden my knowledge of the work of the federal and state agencies. From contacts made at the various workshops, I have been able to secure information for industry groups on work that has been completed or is being carried out in other sections of the country. It seems to me that there is no better way for state and federal workers to become better acquainted and appreciate the work of other agencies, than to spend a few days each year at a workshop in work groups, where we have an opportunity of swapping ideas and discussing the current problems of agriculture.

I know that Marketing Service people, after attending a workshop, have felt more free to request information from workers in other states as these meetings tend to break down barriers between agencies; and I believe that the friendships formed help create mutual respect and appreciation of the other fellow's problems. I do not want to infer that these friendships have always been profitable, because the speaker would have been much better off financially if he had not been introduced to Squirrel Tail by some of his friends from Kentucky. However, the social times that have been enjoyed at the various workshops have done much to help coordinate our work in agriculture.

As Marketing Service people are generally working closer to the producer than is the case of most research people, I believe that it furnishes a chance for the research worker to find out some of the pressing needs and problems confronting the various commodity groups in marketing. By analyzing these problems and needs, research projects can be instigated to work on problems of immediate concern to industry. As market service people become better acquainted with the workers in research, both state and federal, we feel more free to offer suggestions in particular fields where we feel there is need for research.

Nineteen fifty-six marks the tenth anniversary of the adoption of the Research and Marketing Act of 1946. It is my firm opinion that this new field of work has created closer teamwork among all agencies, and that in the future we can look for increased benefit to agriculture because of this relationship. I would like to give you one good example of how good teamwork has paid off in our state.

Several weeks ago the Commissioner of Agriculture and the Dean of the College of Agriculture called a meeting of the leaders of our poultry industry to discuss with them some of the current and future problems of their industry. At this meeting one of the leaders, a man who thinks all the problems can be solved by research and who has very little understanding of Extension and Marketing Service work, was very critical of some of the activities of the Department of Agriculture. At the completion of his talk, Dean Deering immediately defended the service work carried on by the department and discussed at some length its value to not only the poultry people, but to other agricultural groups in the state; he very tactfully reminded the critic that he was not well informed and that his criticism was not justified.

I think you will all agree that such a prompt defense of our work by a worker in another agency would carry more weight than any remarks made by anyone from our department.

So to sum up, to me the National Workshop serves as a vehicle for the Marketing Service people to become acquainted with the workers in other fields of agriculture work. It also is a valuable source to become acquainted with the projects being carried on by other agencies.

To me the National Workshop should be followed up by the respective agencies with their own workshop. In our own Marketing Service workshop, which we hold yearly, we have an opportunity of going into our work in more detail. Much of this detail discussion would be of little interest to research and extension people. I believe this to be equally true with men working for the state departments. While we are interested in the work and results being obtained by research agencies, we are very little interested in the complex details or the methods used in the various projects.

In looking over the very fine summary sent out by Dr. Trelogan this last year, in which he analyzed the attendance at the various workshops, I could not help but be impressed by the number of people who had attended three or more workshops. I am sure that this is an indication of the value of the

National Workshop, as I am sure that these workers would not return if they were not getting something out of it. To me this does, however, raise another problem. That is, if the National Workshop is so valuable to some workers, we must somehow do a better job of interesting new workers to attend the workshop. Valuable as the reports may be, they cannot take the place of active participation at the workshop.

A few comments on this workshop: The purpose of the Agriculture Marketing Act of 1946 was to develop a more balanced program for agriculture. The National Workshops were started to co-ordinate the work between the various agricultural agencies. Most of the service people at this workshop feel that next year we should have a program with a better balance, in that it have equal appeal for the three service groups and that it would not place emphasis on any one service. It was acknowledged that as this was an appraisal of the first ten years of the act and as much of the success of service work depended on sound research, we were justified in featuring agriculture research at this workshop. However, I find most of our workers requesting a return to a better balance, as in other years, for next year's workshop.

Much was said about better planning of research projects, and I believe all agreed there was room for improvement. However, this is equally true of the marketing service program of the Department of Agriculture and Extension workers. I would also suggest that we should have improved planning by research agencies to put into practice the result of research.

In conclusion, to me a farmer producing a box of apples or a research man completing a project are the same; neither job is finished until they are marketed. So I say to research people that they should use the available tools of Extension and Service personnel to complete the marketing of their production for the benefit of agriculture.

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REVIEW OF WORKSHOP CONTRIBUTIONS TO IMPROVED MARKETING EXTENSION PROGRAMS

Maurice C. Bond
Director of Extension
Cornell University

A review at the close of reviews and summaries is almost inevitably anticlimatic. A review can hardly be useful for those who have already engaged in thoughtful participation for 10 days. The highlights by those who have been active in this marketing workshop may be useful to those who were unable to attend and may read the report or proceedings. Here are a few that have been made available by participants in this workshop.

1. Meeting research workers has been most stimulating and helpful. Participating in a workshop where researchers try to analyze the difficult problem of evaluating their own research results over the past 10 years was invaluable.

2. There was a general feeling on the part of participants in the workshop that extension workers should be brought into the planning and doing of research - no question that extension workers will be more enthusiastic about extending the results if they believe in it. Very few believe that what they are doing is not worth while! Selling marketing research results you are not familiar with is "like coming from some place you haven't been."

   In the initial stages of planning research projects an extension man may make contacts with county agents and the trade - easier than a researcher.

   The above is a two-way exchange - extension and research. When an extension man is familiar with a project he can keep cooperators informed as research work is progressing. This will help to maintain interest and prepare persons who may be concerned for more prompt and more favorable acceptance of the results as they become available.

3. From the point of view of extension workers who attended the entire workshop, this workshop has been valuable in improving marketing extension programs because the appraisal groups discussed services and problems and methods of getting research results to farmers, marketing agencies and consumers more than they actually analyzed the effectiveness of research that has been done in the past 10 years.

4. In the past it has been difficult enough to extend effectively the results of research in terms of averages, percentages and index numbers; now with data obtained from newer research techniques (linear programs, econometric models, etc.) extensioners must continue to translate results into forms business men can understand and use.

   This is a growing challenge to those concerned with improving extension programs in marketing. It is also a challenge to those who do the research work and release the results. They must assume some responsibility for explaining the limitations and suggesting how the results may be applied.

The workshop has:

1. Pointed up the availability of marketing research. Extension workers must know this before serving as liaison between research groups and the public.

2. Encouraged Extension and Research groups to improve future communications and to get research results out to users rather than to let them collect dust on the library shelf.

3. Suggested need to put research findings on such topics as product quality and outlook information into non-technical, meaningful language for consumers, based on an understanding of research on consumer buying behavior and preferences.

A relatively new member of a State extension staff, who is responsible for marketing work, points out that the National Marketing Workshop provided him with a better understanding of:

(1) Administrative problems.

(2) Research techniques.

(3) Limitations and weaknesses.

(4) Mutual interest of research and extension service workers.

The need for getting and keeping understanding between research, service and extension workers is recognized by all three groups. One of the best ways to do this is through mutual activities and cooperation. The extension personnel at this National Workshop reported that the workshop itself provided for better understanding.

Furthermore appraisal groups developed several stimulating examples of effective cooperation between the research, extension and service people that gave satisfaction to each of the cooperators as marketers adopted improved practices in marketing farm products.

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Mitchell, G. H.	Assistant Professor Dept. of Economics & Sociology Ohio State University Columbus, Ohio	Member of Appraisal Group V and Seminar III
Morell, B. M.	Director, Bureau of Production and Marketing Puerto Rico Dept. of Agriculture Santurce, Puerto Rico	Period II
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Nordquist, A. V.	Chief, Livestock and Poultry Statistics Branch Agricultural Economics Division Agricultural Marketing Service Washington 25, D. C.	Member of Appraisal Group I and Seminar III
Ogg, Wallace	Professor, & Ext. Economist Dept. of Economics & Sociology Iowa State College Ames, Iowa	Member of Appraisal Group VI

Olson, Fred	Ext. Econ. in Marketing Department of Economics Institute of Agriculture University of Minnesota St. Paul, Minnesota	Period II
Owen, A. L.	Ext. Lvst. Mktg. Specialist Department of Economics and Sociology University of Arkansas Little Rock, Arkansas	Period II
Owens, A. L.	Associate Professor Department of Economics University of Rhode Island Kingston, Rhode Island	Member of Appraisal Group IV and Seminar III; Leader Ad Hoc Session, July 17
Pederson, Harold	Ext. Econ. in Marketing Department of Economics Institute of Agriculture University of Minnesota St. Paul, Minnesota	Period II
Pentzer, W. T.	Chief, Biological Sciences Br. Marketing Research Division Agricultural Marketing Service Washington 25, D. C.	Member of Appraisal Group IV and staff; member of Resolutions Committee
Phillips, C. D.	Economist in Agr. Marketing Department of Economics University of Kentucky Lexington, Kentucky	Member of Appraisal Group II and staff
Phillips, Richard	Associate Professor Dept. of Econ. and Sociology Iowa State College Ames, Iowa	Member of Appraisal Group V and Seminar III
Pickrel, L. S.	Ext. Econ. in Public Affairs Department of Economics Institute of Agriculture University of Minnesota St. Paul, Minnesota	Member of Appraisal Group VII and Seminar III
Pritchard, N. T.	Head, Poultry Section Market Organization and Costs Branch Marketing Research Division Agricultural Marketing Service Washington 25, D. C.	Secretary of Appraisal Group II

Purcell, J. C.	Asst. Agricultural Economist Department of Economics Georgia Agricultural Exp. Station Experiment, Georgia	Member of Appraisal Group V and Seminar II
Ragsdale, J. M.	Ext. Economist in Marketing Department of Economics University of Missouri Columbia, Missouri	Period II
Reid, E. P.	Principal Economist Economics Division Canada Dept. of Agriculture Ottawa, Ontario, Canada	Member of Appraisal Group III and Seminar III
Reynolds, Howard	Human Nutrition Research Branch Agricultural Research Service Washington 25, D. C.	Member of Appraisal Group IV and staff
Reynolds, J. E.	Information Specialist Division of Information Agricultural Marketing Service Washington 25, D. C.	Member of Appraisal Group I and staff
Richards, Allen	Graduate Student Dept. of Economics & Sociology Iowa State College Ames, Iowa	Member of Appraisal Group III and Seminar I
Robert, S. A., Jr.	Market Research Director American Dairy Association 20 N. Wacker Drive Chicago 6, Illinois	Consultant to Appraisal Group V
Robertson, Norris	Marketing Specialist Dairy & Creamery Division Mississippi State Department of Agriculture and Commerce Myrtle, Mississippi	Period II
Robinson, Larry	Director, Warehouse, Community Sales and Market News Division Oklahoma State Board of Agriculture Oklahoma City 5, Oklahoma	Member of Appraisal Group I and Seminar V
Robotka, Frank	Professor of Agr. Economics Dept. of Economics & Sociology Iowa State College Ames, Iowa	Member of Appraisal Group VII

Rorholm, Niels	Head, Dept. of Economics University of Rhode Island Kingston, Rhode Island	Chairman, General Session July 19; member of Appraisal Group VII and Seminar V
Rowell, P. T.	Chief, Division of Market Development Oregon Department of Agriculture Salem, Oregon	Period II
Sadd, C. W.	General Manager Cooperative P & C Family Foods 2100 Park Street Syracuse, New York	Speaker, General Session July 16
Samuels, J. K.	Director, Marketing Research Farmer Cooperative Service Washington 25, D. C.	Member of Appraisal Group III and staff
Saville, R. J.	Agricultural Economist State Experiment Station Div. Office of Experiment Stations Agricultural Research Service Washington 25, D. C.	Member of Appraisal Group VII and staff
Schnittker, J. A.	Associate Agr. Economist Dept. of Economics & Sociology Iowa State College Ames, Iowa	Member of Appraisal Group VI and Seminar I
Schruben, L. W.	Professor Dept. of Economics & Sociology Kansas State College Manhattan, Kansas	Chairman of Appraisal Group VII
Schumaier, C. P.	Asst. Professor of Marketing Department of Economics University of Illinois Urbana, Illinois	Member of Appraisal Group VI and Seminar III
Scott, J. T.	Graduate Student Dept. of Economics & Sociology Iowa State College Ames, Iowa	Member of Appraisal Group I and Seminar IV
Scott, R. C.	Assistant Director Division of Agr. Econ. Programs Federal Extension Service Washington 25, D. C.	Member of Workshop Planning Committee

Seltzer, R. E.	Professor and Agr. Econ. Department of Economics University of Arizona Tucson, Arizona	Chairman of Appraisal Group V
Shaffer, J. D.	Assistant Professor Department of Economics Michigan State University East Lansing, Michigan	Member of Appraisal Group V and staff; leader of Ad Hoc Session, July 16
Shaw, W. L.	Commodity-Industry Analyst Western Utilization Res. Br. Agricultural Research Service 800 Buchanan Street Albany 10, California	Member of Appraisal Group V and staff
Shepherd, G. S.	Professor Dept. of Economics & Sociology Iowa State College Ames, Iowa	Chairman of Workshop Planning Committee and of Committee on Local Arrangements
Simmons, W. M.	Statistical & Historical Research Branch Agricultural Economics Division Agricultural Marketing Service Washington 25, D. C.	Member Appraisal Group I and Seminar I
Singleton, R. E.	Director, Marketing Division Missouri Dept. of Agriculture Jefferson City, Missouri	Period II
Snitzler, J. R.	Asst. Head, Transportation Sec. Transportation & Facilities Br. Marketing Research Division Agricultural Marketing Service Washington 25, D. C.	Member of Appraisal Group III and Seminar V
Southworth, H. M.	Asst. to Deputy Administrator Agricultural Marketing Service Washington 25, D. C.	Consultant to Workshop Planning Committee; Speaker at Gen. Session, July 20
Stice, L. F.	Ext. Economist in Marketing Department of Economics University of Illinois Urbana, Illinois	Period II
Spielman, A. A.	Associate Director Conn. Agr. Experiment Station University of Connecticut Storrs, Connecticut	Member of Appraisal Group VII and Seminar V

Stahl, B. M.	Transportation & Facilities Br. Agricultural Marketing Service Iowa State College Ames, Iowa	Member of Appraisal Group III and Seminar V
Stocker, F. D.	Analytical Statistician Farm Income Branch Agricultural Economics Division Agricultural Marketing Service Washington 25, D. C.	Member of Appraisal Group I and Seminar II
Taylor, R. B.	Administrator Oregon Wheat Commission P. O. Box 24 Pendleton, Oregon	Speaker at General Session July 14; member of Appraisal Group V and Seminar V
Tedford, John R.	Graduate Student Dept. of Economics & Sociology Iowa State College Ames, Iowa	Member of Appraisal Group II and Seminar I
Thompson, S. H.	Professor Dept. of Economics & Sociology Iowa State College Ames, Iowa	Member of Appraisal Group V and Seminar III
Thor, Eric	Associate Professor Department of Economics University of Florida Gainesville, Florida	Consultant to Appraisal Group III
Thorpe, D. M.	Acting Head Dept. of Economics and Rural Sociology University of Tennessee Knoxville 16, Tennessee	Member of Appraisal Group V and Seminar V; member of Resolutions Committee
Torres-Costa, Nelson L.	Res. Asst. in Agronomy Agricultural Exp. Station University of Puerto Rico Rio Piedras, Puerto Rico	Period II
Trelogan, Harry C.	Director Marketing Research Division Agricultural Marketing Service Washington 25, D. C.	Consultant to Workshop Planning Committee; Speaker, Gen. Session, July 13; member of Appraisal Group VII and leader Seminar V

True, A. W.	Assistant to Director Marketing Research Division Agricultural Marketing Service Washington 25, D. C.	Executive Secretary of Workshop Planning Committee and of Workshop
Walsh, R. M.	Chief, Market Development Br. Marketing Research Division Agricultural Marketing Service Washington 25, D. C.	Secretary of Appraisal Group V
Wills, W. J.	Professor of Agr. Marketing Southern Illinois University Carbondale, Illinois	Chairman of Appraisal Group VI
Wilson, John	State Statistician Fed.-State Crop Reporting Serv. Agricultural Estimates Division Agricultural Marketing Service Topeka, Kansas	Member of Appraisal Group I
Woodard, A. W.	Associate Extention Marketing Specialist Dept. of Economics and Rural Sociology University of Tennessee Knoxville 16, Tennessee	Period II
Woodin, M. D.	Professor Department of Economics Louisiana State University Baton Rouge, Louisiana	Chairman of Appraisal Group II
Working, E. J.	Professor and Chairman Department of Economics State College of Washington Pullman, Washington	Member of Appraisal Group VI and Seminar V; member of Resolutions Committee

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